The PHOTOFACT® Servicer

SET 553 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ NOV. 1961

CONTENTS PHOTOFACT SET 553

TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
CORONADO	
TV2-9402G, TV2-9402H	553-1
RCA VICTOR	
192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)	553-2
OTHER EQUIPMENT	
BLAUPUNKT	
Verona 2608	553-3
CHEVROLET	
988414	553-4
FIRESTONE	
4-A-216A	553-5
FISHER	
FM-50	553-6
GRUNDIG MAJESTIC	
SO191U	553-7
HARMAN-KARDON	
TA224 (Stereo Recital)	553-8
MAGNAVOX	
AM-60	553-9
OLDSMOBILE	
989393	553-10
PHILCO	
J-1425BE, J-1425GY	553-11
SYLVANIA	
7K10, 7K11 (Ch. 679-1)	553-12
SYMPHONIC	
1723, 1744	553-13
TOSHIBA	
3WX, 7TP-303	553-14
V-M	
803, 805	553-15
YASHICA	
YT-300	553-16

This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

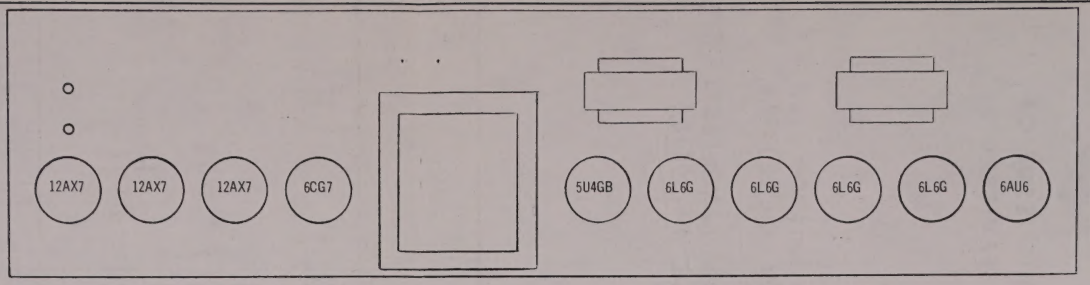
IN THIS ISSUE OF THE SERVICER:

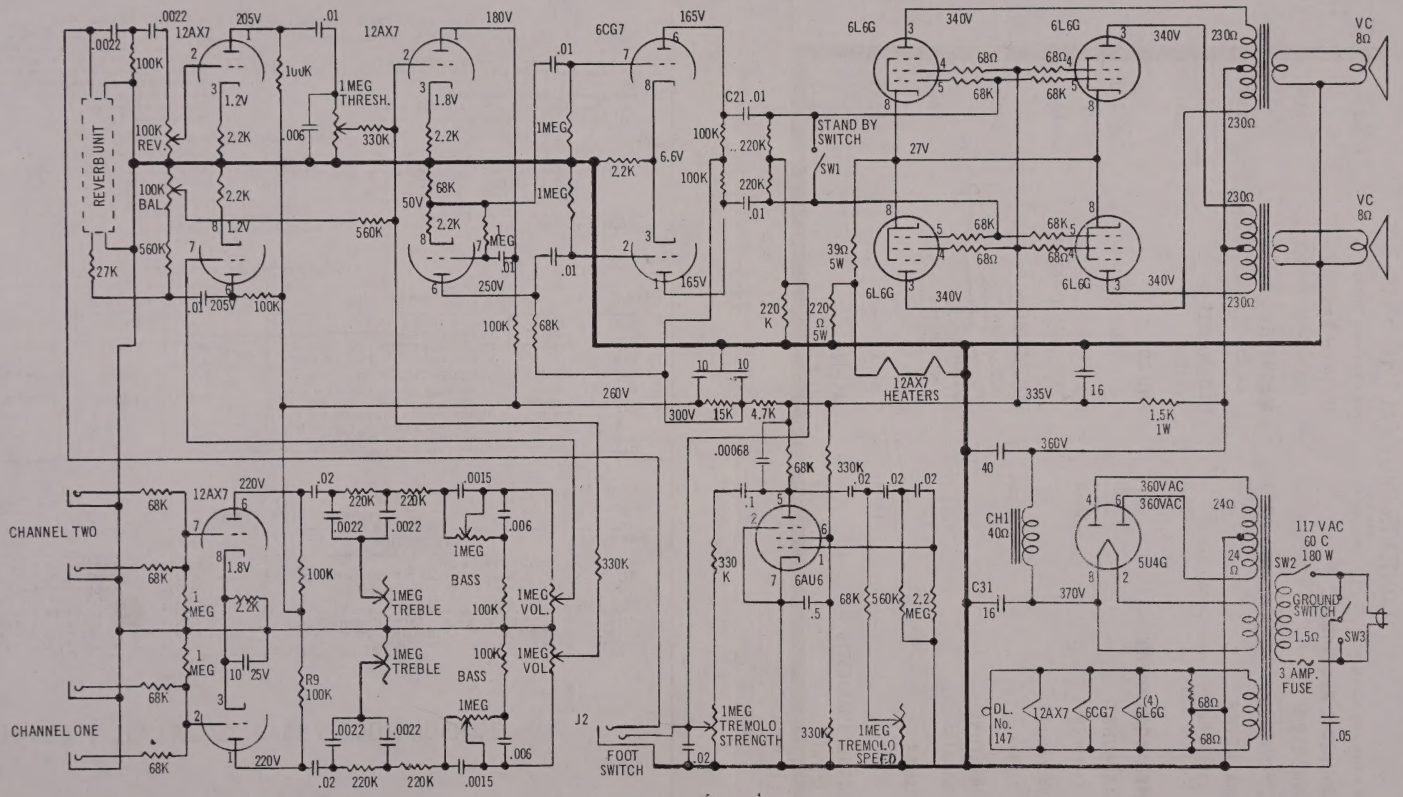
Emerson Models 834X, 892A (CH. 120394B)

Silvertone Model 1474 (CH. 185.10410)

NOTES:

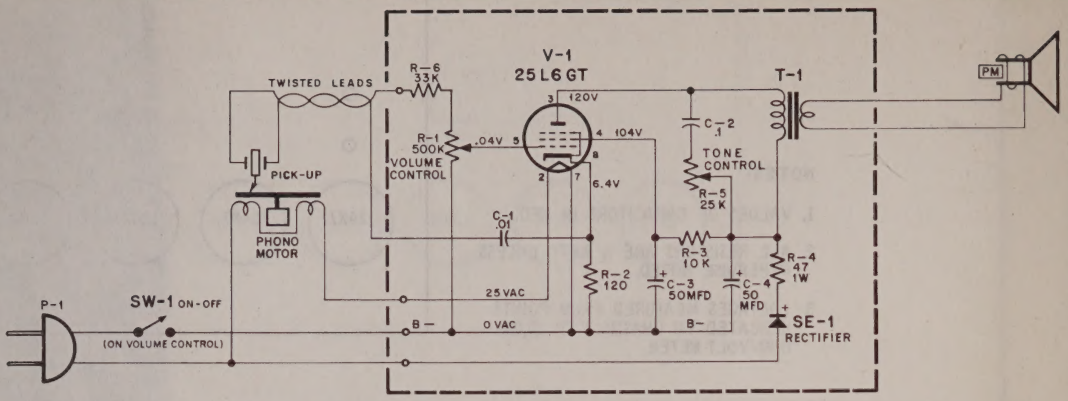
1. VALUES OF CAPACITORS IN MFD.
2. ALL RESISTORS ARE ½ WATT UNLESS OTHERWISE NOTED.
3. VOLTAGES MEASURED FROM POINTS INDICATED TO CHASSIS WITH 20,000 OHM/VOLT METER.





SILVERTONE MODEL 1474 (CH. 185.10410)

Schematic Diagram Courtesy of Sears, Roebuck & Company



CONDITIONS FOR VOLTAGE AND RESISTANCE READINGS

1. Voltages indicated are positive d.c., resistances in ohms, unless otherwise indicated.
2. Measurements made with voltohmyst or equivalent.
3. All measurements taken from pin to B neutral unless otherwise indicated.
4. Voltage measurements taken with:
   a) Line voltage maintained at 117 volts a.c. only.
   b) Volume control set for maximum volume.
5. Resistance measurements taken with:
   a) Power line cord disconnected from outlet.
   b) Volume control set for maximum volume.
6. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
7. N.C. denotes no connection, K is kilohms, Meg. is megohms. Resistances marked * are measured to positive terminal of selenium rectifier.

RESISTANCE READINGS

SYMBOL	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8
V-1	25L6GT	N.C.	25	*200Ω	*10 K	Vary Vol. Control 0 to 500 K	N.C.	0 Ω	120 Ω

Indicates resistance taken with respect to + terminal of Selenium Rectifier.

CHASSIS PARTS LIST, CH 120394B

SYMB.	PART NO.	DESCRIPTION
C-1	923514	.01 MFD PAPER 400V.
C-2	923515	.1 MFD PAPER 400V.
C-3	925407	50 MFD ELECTROLYTIC 450V.
C-4	PT. OF C-3	50 MFD ELECTROLYTIC 150V.
P-1	583069	PLUG AND LINE CORD
R-1	390477	500,000 OHM VOLUME CONTROL
R-2	340272	120 OHM CARBON ±10% ½W.
R-3	350732	10,000 OHM CARBON ±20% ½W.
R-4	394168	47 OHM Clarostat, Type FYG
R-5	390478	25,000 OHM TONE CONTROL
R-6	350852	33,000 OHM CARBON ±20% ½W.

SYMB.	PART NO.	DESCRIPTION
SE-1	817063	SELENIUM RECTIFIER
SW-1	PT. OF R-1	SWITCH - ON-OFF (POWER)
T-1	734152	OUTPUT TRANSFORMER
V-1	800490	VACUUM TUBE - 25L6GT

PHONOGRAPH PARTS LIST

PART NO.	DESCRIPTION
819118	FOUR SPEED MOTOR
819088	8" TURNTABLE W. 45 R.P.M. ADAPTER
275082	"C" WASHER FOR TURNTABLE
962219	TONE ARM
962195	TURNOVER CARTRIDGE (Ronette-TE-200)
961876	16,33-1/3,45 R.P.M. STYLUS (Ronette-5304L)
961875	78 R.P.M. STYLUS (Ronette-5304N)
962218	STYLUS HOLD-DOWN SCREWS

PART NO.	DESCRIPTION
962217	CARTRIDGE COMPRESSION SPRING
962216	CARTRIDGE BUSHING WASHER
962199	KNOB, TURNOVER CARTRIDGE
962215	SET SCREW FOR KNOB
413077	HOLD-DOWN ARM REST
961213	45 R.P.M. ADAPTER
961215	SPEED CLIP FOR ADAPTER
961214	ADAPTER SPRING

EMERSON MODELS 834X, 892A (CH. 120394B)

Information Courtesy of Emerson Radio & Phonograph Corporation

PHOTOFACT® Folder

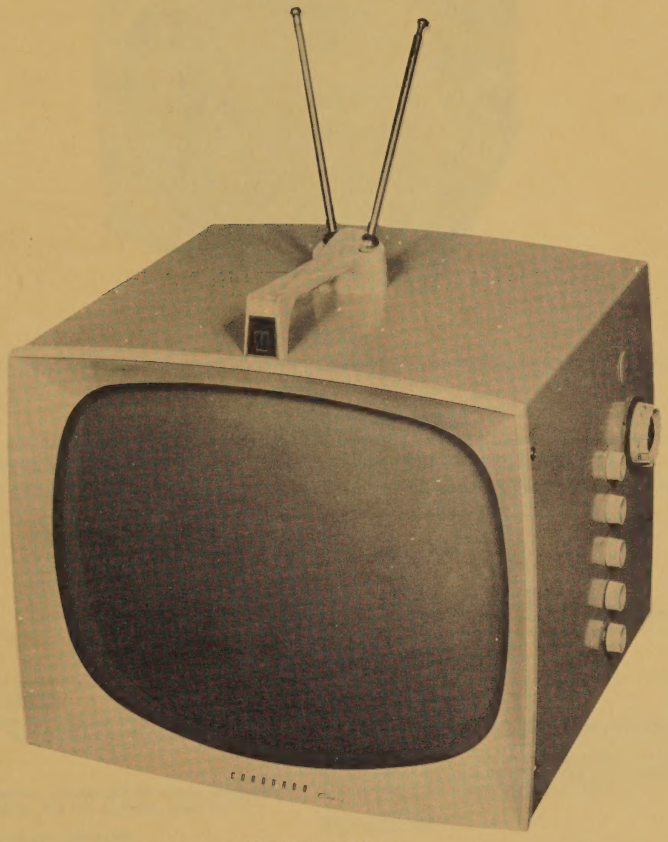
CORONADO MODELS
TV2-9402G, TV2-9402H

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

CORONADO MODELS
TV2-9402G, TV2-9402H



MODEL TV2-9402G

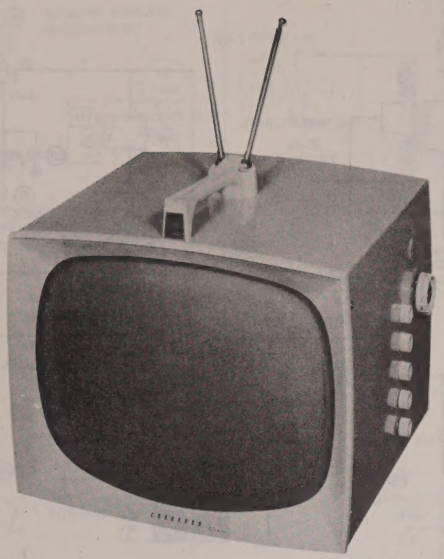
CORONADO MODELS
TV2-9402G, TV2-9402H

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CORONADO MODELS TV2-9402G, TV2-9402H

CORONADO MODELS TV2-9402G, TV2-9402H



MODEL TV2-9402G

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Coronado Models TV2-9402G, TV2-9402H
SUPPLIER	Gamble-Skogmo, Inc., 15 North 8th Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	VHF - Fourteen, UHF - Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 115 Watts, 1.15 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

The safety glass may be cleaned by removing entire cabinet front (6 screws). See "Picture Tube Removal" page 16.

FUSE DEVICE

A 4.7Ω fusible resistor is used for LV power supply protection. (For location, See R57 in Photo, page 13.)

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

No provision is made to vary the AGC on this receiver.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B1). (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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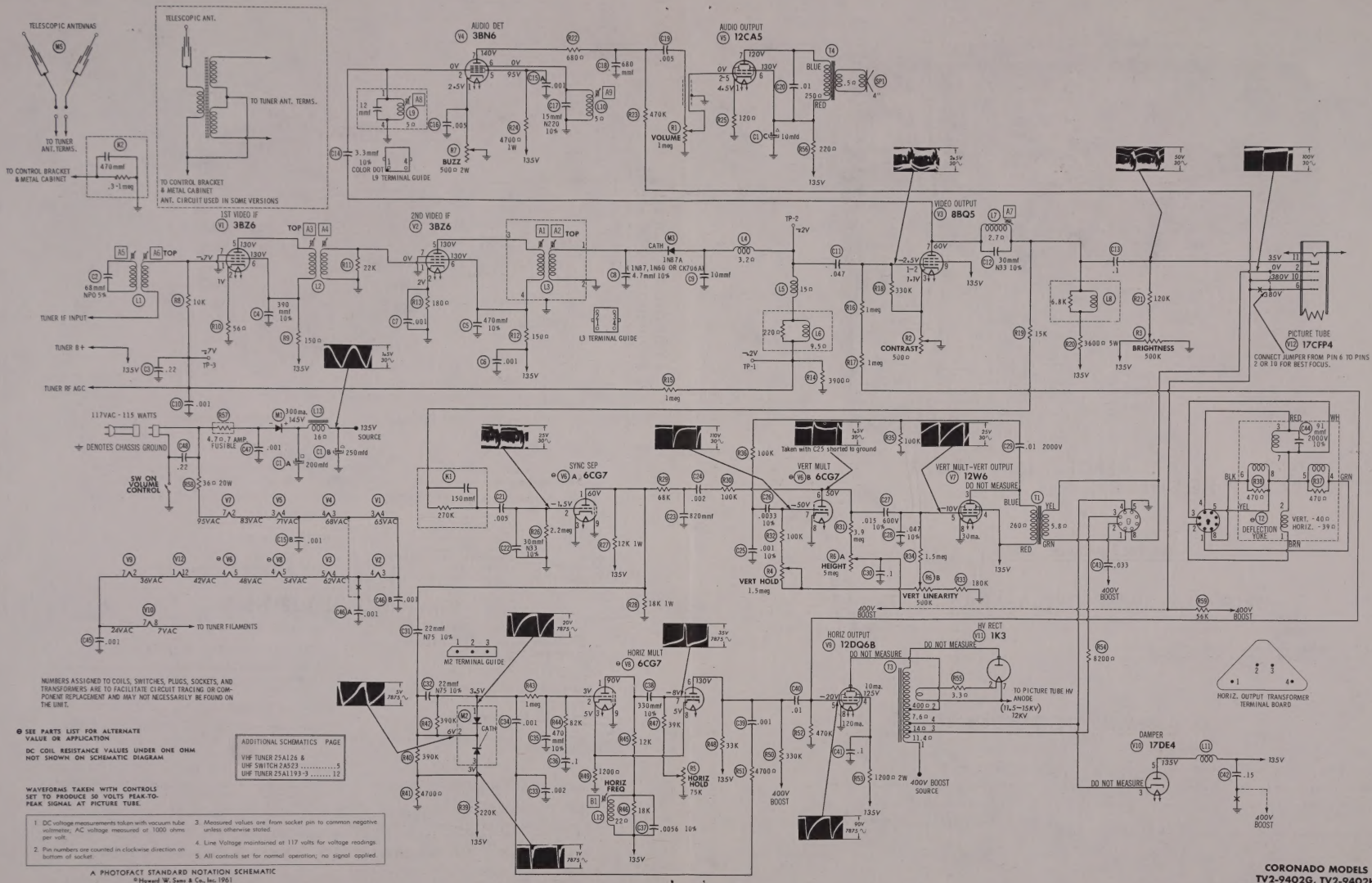

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ADDITIONAL SCHEMATICS PAGE

VHF TUNER 25A126 & UHF SWITCH 2A523	5
UHF TUNER 25A1193-3	12

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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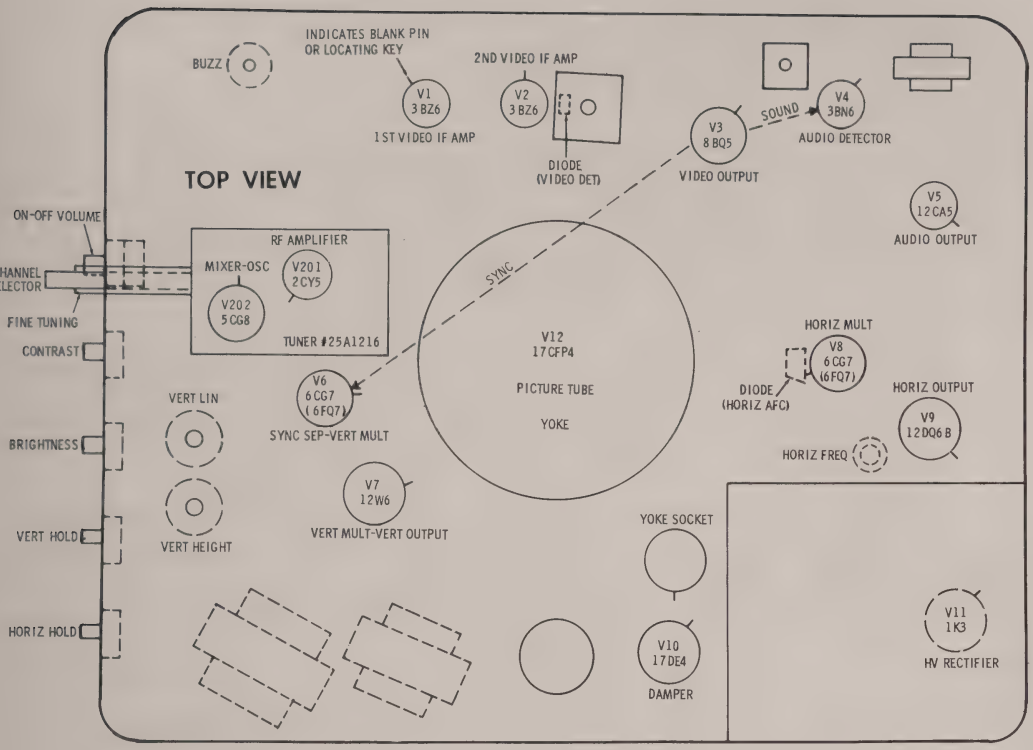
CORONADO MODELS
TV2-9402G, TV2-9402H

TUBE PLACEMENT CHART



CORONADO MODELS
TV2-9402G, TV2-9402H

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

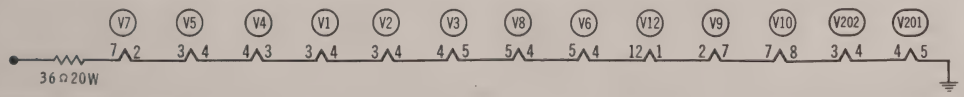
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor, Rectifier (M1)

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12
No vertical deflection V6, V7
Poor vert. linearity or foldover V6, V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, M1 (Rectifier)
Vert. off freq. V6, V7
Horiz. off freq. Diode (Horiz. AFC), V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det.), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6
No vert. or horiz. sync V6

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



FOLDER 1

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 7 volt bias supply to TP-3. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01mfd	High side to pin 1 (grid) of 2nd Video IF. Low side to chassis. Adjust output for 4VP-P on scope.	44.0MC (10MC Swp.)	42.4MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 47K to TP-1. Low side to chassis. (Across Video Detector load).	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls marker position and A2 controls gain and symmetry.
2.	"	High side to pin 1 (grid) of 1st Video IF. Low side to chassis. Adjust for 4VP-P on scope.	"	42.4MC 43.5MC 44.5MC 45.75MC	"	"	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 controls marker position and A4 controls gain and symmetry.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.4MC 43.5MC 44.5MC 45.75MC	"	"	A5, A6, and Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Adjust A5 to place 41.25MC marker in trap notch.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of Video Output. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	AC probe to pin 11 (cathode) of picture tube. Common to chassis. Use 0-10V AC scale.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV station and reduce the signal strength at the antenna terminals until a hiss is heard in the sound similar to super-regeneration.
Adjust A8, A9 and the Buzz control for maximum undistorted sound with MINIMUM buzz.
If the hiss disappears during adjusting, further reduce the signal strength.

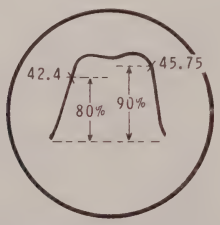


FIG.1

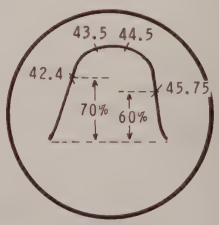


FIG.2

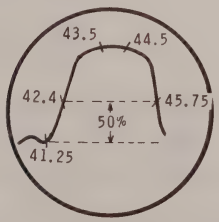
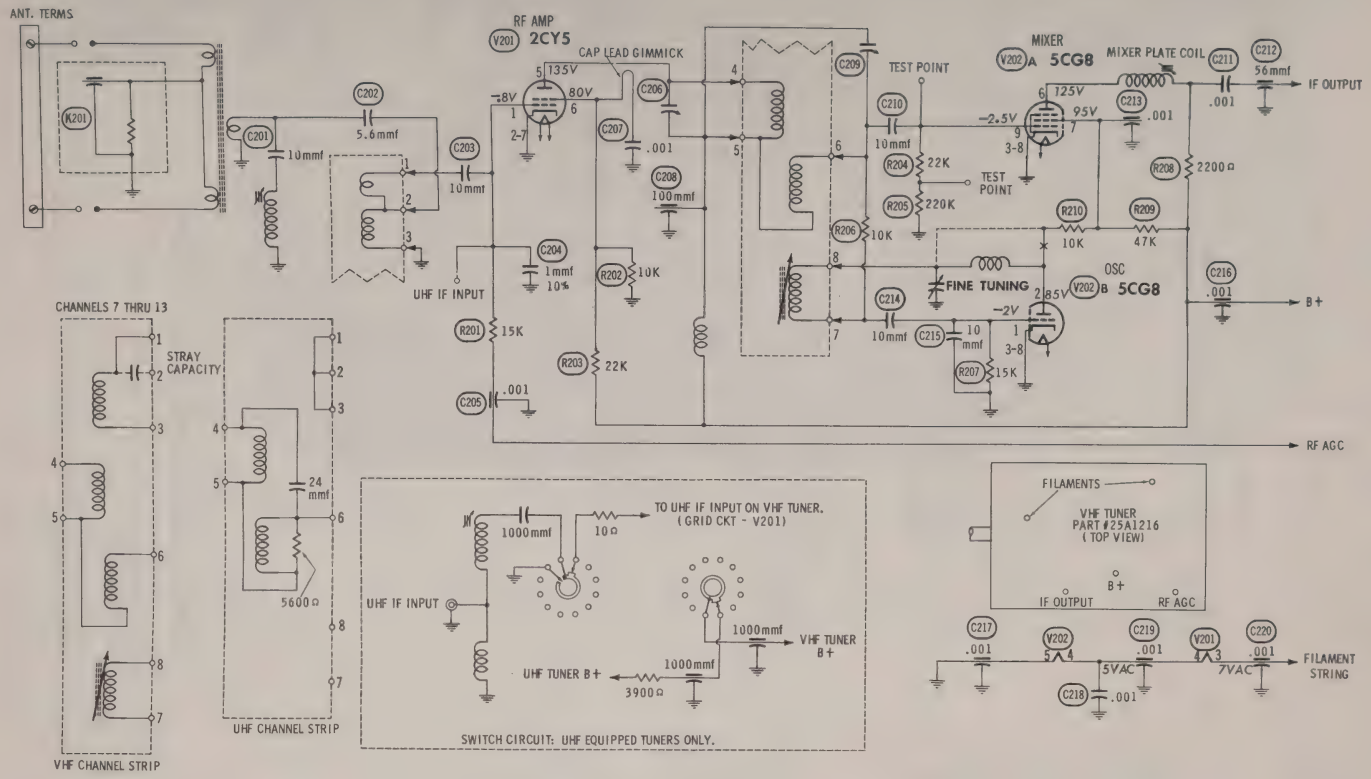


FIG.3



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 25A1216 & UHF SWITCH 2A523

CORONADO MODELS
TV2-9402G, TV2-9402H

VHF TUNER PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆		RAYTHEON ◆		SYLVANIA ◆	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	2CY5	V202	Mixer - Osc.	5CG8

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C202	5.6							10TCC-V56
C203	10		DI-10	DD-10	L10Q1	CCD-100	GP410	10TS-Q10
C204	1mmf 10%		NPO-SI 1.0	TCZ-1			CNO-510	10TCC-V10
C205	.001		EF-001	MFT-1000		CCF-102	CT280A	
C206								
C207	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C208	100		EF-0001	MFT-100			CT280A	
C209								
C210	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C211	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C212	56							
C213	.001		EF-001	MFT-1000		CCF-102	CT280A	
C214	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C215	10		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C216	.001		EF-001	MFT-1000		CCF-102	CT280A	
C217	.001		EF-001	MFT-1000		CCF-102	CT280A	
C218	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	15K				R206	10K			
R202	10K				R207	15K			
R203	22K				R208	2200Ω			
R204	22K				R209	47K			
R205	220K				R210	10K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA
K201	Antenna Filter			

TUNER ALIGNMENT INSTRUCTIONS

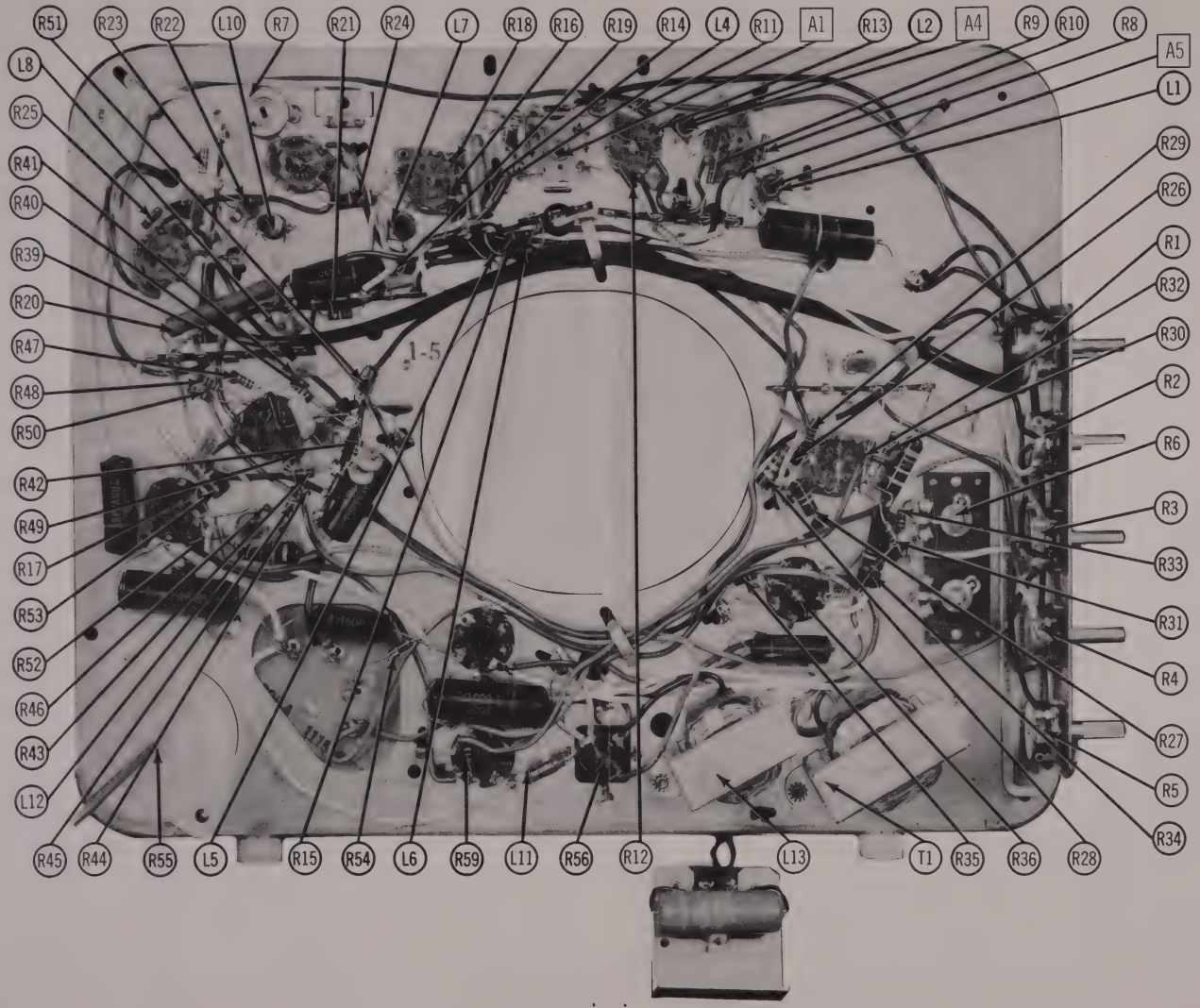
Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

VHF OSCILLATOR ALIGNMENT

The individual channel adjustment screws are accessible one at a time thru a hole in the front of the tuner, as the Channel Selector is rotated. Set the Fine Tuning to the center of its range and switch to the channel to be adjusted. Adjust for best picture and sound.

VHF RF, MIXER, UHF TUNER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



CHASSIS BOTTOM VIEW - ALIGN., RESISTOR, INDUCTOR, TRANSFORMER IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	GENERAL ELECTRIC • RAYTHEON • SYLVANIA • TYPE
V1	1st Video IF Amp.	3BZ6
V2	2nd Video IF Amp.	3BZ6
V3	Video Output	6BQ6
V4	Audio Detector	3BN6
V5	Audio Output	12CA5
V6	Sync Sep. - Vert. Mult.	6CG7 (6FQ7) *
V7	Vert. Mult. - Vert. Output	12W6
V8	Horiz. Mult.	6CG7 (6FQ7) *
V9	Horiz. Output	12DQ6B
V10	Damper	17DE4
V11	HV Rectifier	1K3

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: CORONADO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V12	17CEP4	17CEP4 ①	17CEP4 ①		17CEP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT.	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	≈ 200	200	45X445	AFHS3-13-90	X80252	XC3-20	FP318. 8	TMD-2260	TVL8-3490 *
B	≈ 250	200			BBR12-250			TD-10-250	
C	≈ 10	200							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	68 NPO 5%			DTZ-68	C10Q68C		CNO-468	10TCC-Q68
C3	.22 200V		P288N-22		CUB2P22	2DP-4-224	GEM-2022	2TM-P22
C4	390 10%		DI-390	DD-391	L10T39	CCD-391	GP339	10TS-T39
C5	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C6	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C7	.001		BPD-001	DD-103	BYA10D1	CCD-102	B-210	5HK-D10
C8	4. 7 10%		NPO-SI 4. 7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C9	10		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C10	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C12	30 N33 10%	#47X689				*		*
C13	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C14	3. 3 10%		NPO-SI 3. 3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C15A	.001		BPD-2X001	DD2-102	BYC5DD1	CCD-102	B2X210	5HK-2D10
B	.001					CCD-102		
C16	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	15 N220 10%	#47X672				*		*
C18	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C19	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C20	.01		BPD-01	DD-103	BYA10D1	CCD-103	B-110	5HK-D10
C21	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C22	30 N33 10%	#47X689				*		*
C23	820		DI-820	DD-821	BYA10T82	CCD-821	B-382	10TS-T82
C24	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C25	.001 10%		DI-100	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C26	.0033 400V 10%		V84C4D33-10%		PMB033	6DP-1-332	JL-233	6TM-D33
C27	.015 600V 10%		V84C6S15-10%		PM6S15	6DP-2-153		6TM-S15
C28	.047 200V 10%		V84C2S47-10%		PM2S47	4DP-3-473	GEM-1615	2TM-S47
C29	.01 2000V						2EV-110	B1L-S10
C30	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	
C31	22 N75 10%	#80X32				*		
C32	22 N75 10%	#80X32				*		
C33	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	470 10%		DI-470	DD-471	5R5T47	CCD-470	GP347	10TS-T47
C36	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C37	.0056 400V 10%				DPM6D56	6DP-1-562		6PS-D56
C38	330 10%		1469-00033		5R5T33	CM-19B-331K	MCB241	MS-333
C39	.001		BPD-001	DD-102	BYA10D1	CCD-103	B-210	5HK-D10
C40	.01		BPD-01	DD-103	BYA10B1	CCD-103	B-110	5HK-B10
C41	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-D10
C42	.15 600V		P688N-15		CUB6X15	6DP-5-154	GEM-6015	6TM-P15
C43	.033 400V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C44	91 2000V 10%				RVB6T91		2DY-310	3DTCY-T10
C45	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C46A	.001		BPD-2X001	DD2-102	BYC5DD1	CCD-102	B2X210	5HK-2D10
B	.001					CCD-102		
C47	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C48	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22

Coronado Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	36X433	B-69	A47-1meg-S	Q11-137	U54	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWF-12	78-1	US-26	Power Off-On
R2	500Ω	½	40X505	B-415		Q17-105	U52B	Contrast
R3A	500K	½	40X506	B-59	A47-500K-S	Q11-133	U50	Brightness
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

CONTROLS (cont)

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R4A	1. 5meg	½	40X507	B-742	A47-1.5meg-S	Q11-138	U155	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	75K	½	40X511	B-35	A47-75K-S	Q11-135	TA15L	Horiz. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R6A	5meg	½	40X508	TT-87	B47-5meg-S	HLC-5	PTA56L	Height
B	500K	½		TT-59	B47-500K-S	B11-133	PTA55L	Vert. Linearity
C	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R7	500Ω	2(WW)	40X472			110-600	PFL-600	Buzz

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No	REMARKS
R8	10K			
R9	150Ω			
R10	56Ω			
R11	22K			
R12	150Ω			
R13	180Ω			
R14	3900Ω			
R15	1meg			
R16	1meg			
R17	1meg			
R18	330K			
R19	15K			
R20	3600Ω 5W	PW5-3600	5W-SQ-3600	
R21	120K			
R22	680Ω			
R23	470K			
R24	4700Ω 1W			
R25	120Ω			
R26	2. 2meg			
R27	12K 1W			
R28	18K 1W			
R29	68K			
R30	100K			
R31	3. 9meg			
R32	100K			
R33	180K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No	WORKMAN TV PART No	REMARKS
R34	1. 5meg			
R35	100K			
R36	100K			
R37	470Ω			
R38	470Ω			
R39	330K			
R40	390K			
R41	4700Ω			
R42	390K			
R43	1meg			
R44	82K			
R45	12K			
R46	18K			
R47	39K			
R48	33K			
R49	1200Ω			
R50	330K			
R51	4700Ω			
R52	470K			
R53	1200Ω 2W			
R54	8200Ω			
R55	3. 3Ω			
R56	220Ω			
R57	4. 7Ω (Fusible)	FR4. 7	FZ4. 7	#43X431
R58	36Ω 20W			
R59	56K			

Coronado Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA
K1	Sync Sep. Grid	150mmf, 270K	76X15	Centralab PC-60
K2	Control Panel Isolation	470mmf, .3-1meg	76X18	Centralab RC-471
				Sprague ACI-1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1A	1st Video IF	9A2436	TV-156	6221 †	RTC-8552 †	T224 †	① Wound on 220Ω Resistor
B	41. 25MC Trap						② Wound on 6800Ω Resistor.
L2	2nd Video IF	9A2390					† Disregard secondary.
L3	3rd Video IF	9A2486					* Parallel with 220Ω
L4	RF Choke (7. 5uh)	9A2432	BC-565	4611	RTC-8521	T859	Resistor.
L5	Peaking (290uh)	36A22	TV-185	6155	RTC-8587	T318	▲ Parallel with 6800Ω
L6	Peaking (110uh)	36A19 ①	TV-194 *	6153 *	RTC-8574 *	T305 *	Resistor.
L7	4. 5MC Trap	9A2366	TV-151	1469	RTC-8602	T249	
L8	Peaking (350uh)	36A28 ②	TV-190 ▲	6132 ▲	RTC-8577 ▲	T319 ▲	
L9	Sound Takeoff	9A2434	TV-155	1470-A	RTC-8604	T247	
L10	Quadrature	9A2367	TV-121	1460	RTC-8605	T251	
L11	RF Choke (1. 5uh)	9A2380	BC-562	4604	RTC-8516	T856	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L12	Horiz. Stabilizer	9A2467	MWC-12	6315	WC-18		WLC-3	T110	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 (%)	REPLACEMENT DATA: CORONADO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L13	.300A	16Ω	.37 Hy.	52X102-3				C-27X	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No	Triad PART No	NOTES
T1	Vert. Output	51X193-3	A-2815 ①	VO-109 ①	26S75 ①	A-117X	
T2	Yoke Horiz. 35MH (90°) Vert. 32MH	9A2485-2A	MDF135	DY-31A ③	Y-45 ③	Y-45-2 ④	
	Alt. Yoke	9A2485-2					
T3	Horiz. Output	53X398A	HVO-134	HO-297	FLY-146	D-134	
	Alt. Horiz. Output	53X398					

original.
① Use 8 to 1 Turns Ratio.
② Remove jumper from across yoke plug pins #7 and #8. Remove jumper from yoke terminals #1 and #4. Connect same as original.
③ Connect yoke #1 to plug pin #4; yoke #2 and #7 to yoke plug pin #3; yoke #3 to plug pin #2; yoke #4 to plug pin #6; yoke #6 to plug pin #1; yoke #5 and #8 to plug pin #5. Remove jumper from across yoke terminals #3 and #6 and from across yoke plug pins #7 and #8.
④ Remove jumper from across yoke plug pins #1 and #8. Connect same as original.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: CORONADO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	4800Ω	3-4Ω	51X192-3	A-3026	A-3877	34S48	S-6X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: CORONADO PART No.	QUAM PART No.	NOTES
SP1	4"	P.M	3-4Ω	12A560-2	4A05	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: CORONADO PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.300A	66X23	1N1763	40H	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: CORONADO PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	NOTES
M2		66X21 *	6GC1 *		* Dual Selenium, Common Cathode Type
M3	1N87A *	66X20 *		1N87A	* Crystal Diode, Video Detector
	1N87 †			1N87	† Alternate, replace with original type used.
	1N80 †			1N80	
	CK-706A†				

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	25A1216	VHF Complete, STANDARD COIL REPLACEMENT #GG8422IA
	Tuner	25A1193-3	UHF
	Switch	2A523	UHF
M5	Antenna (Dipole)		JFD REPLACEMENT Type #TA368

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

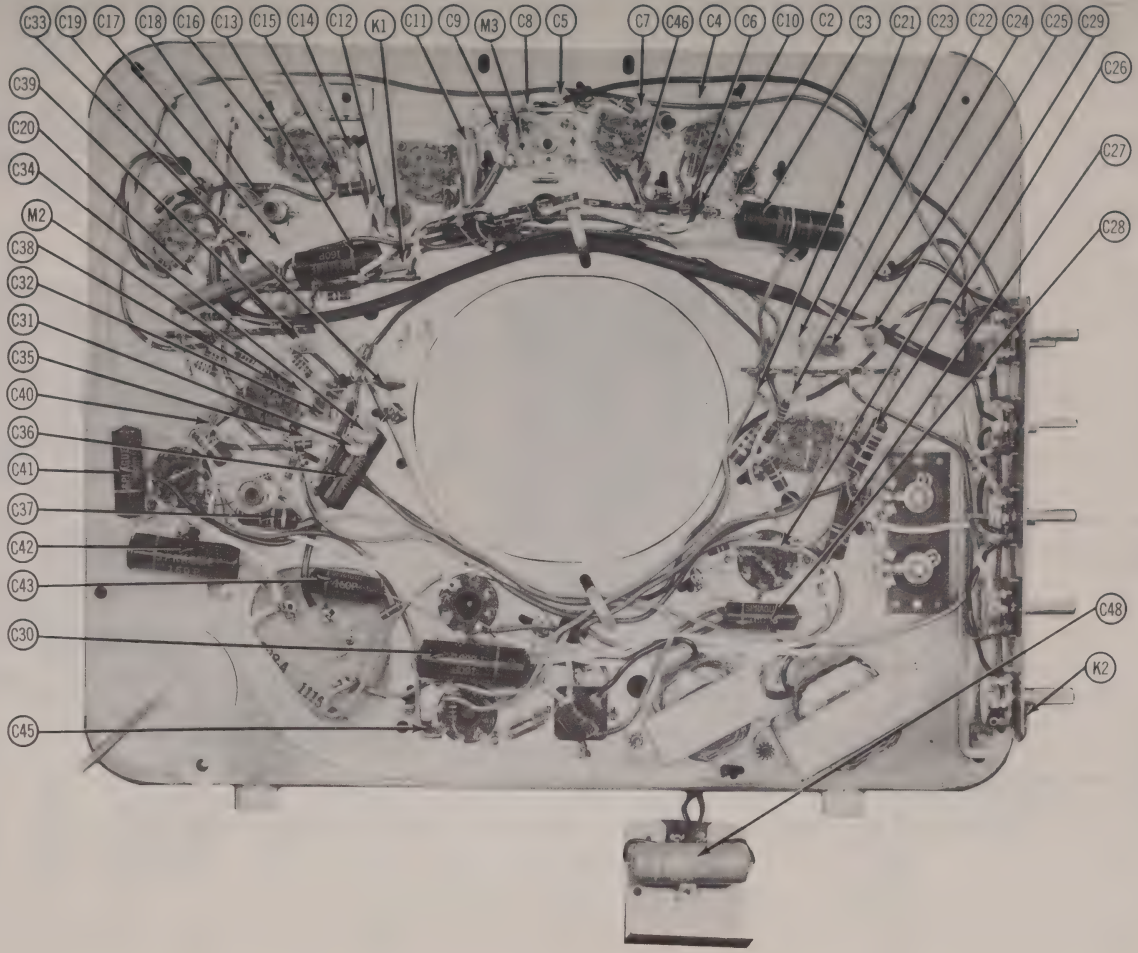
NAME	PART NO.	DESCRIPTION
Safety Glass	17X198	

WIRING DATA

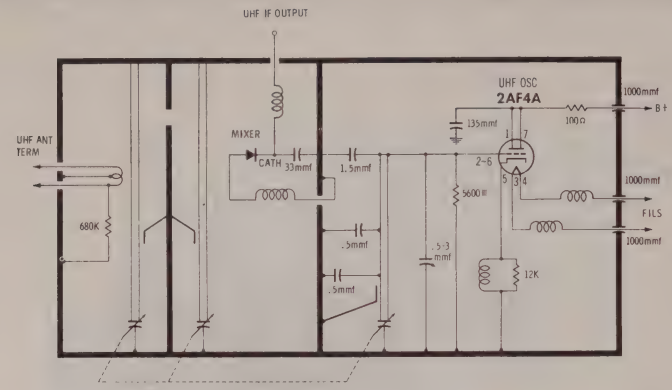
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8404 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 8 Conductor

CORONADO MODELS TV2-9402G, TV2-9402H

FOLDER 1



CHASSIS BOTTOM VIEW - CAPACITOR, MISC. IDENT.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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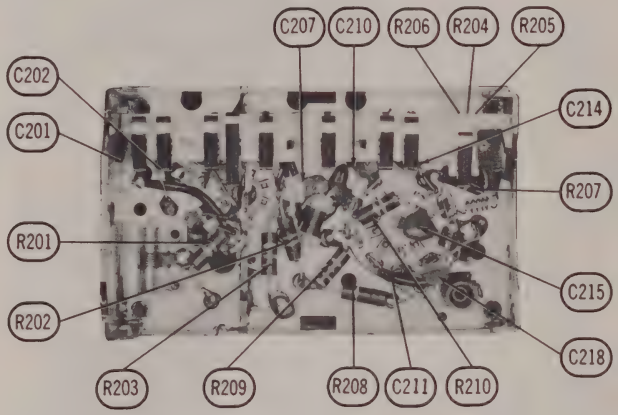
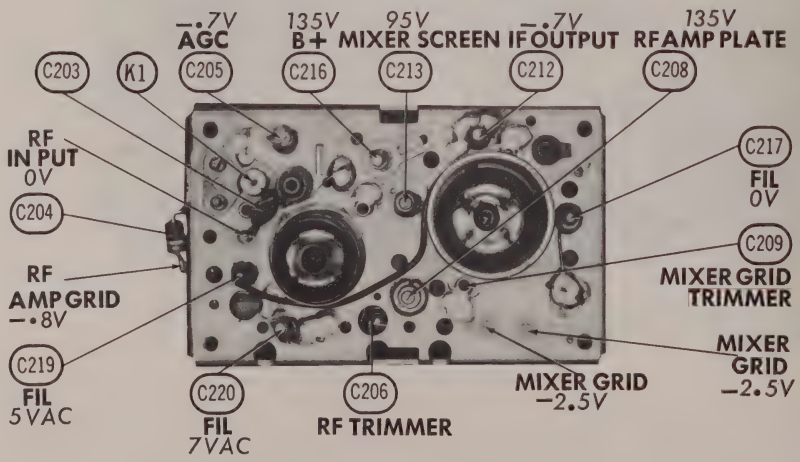
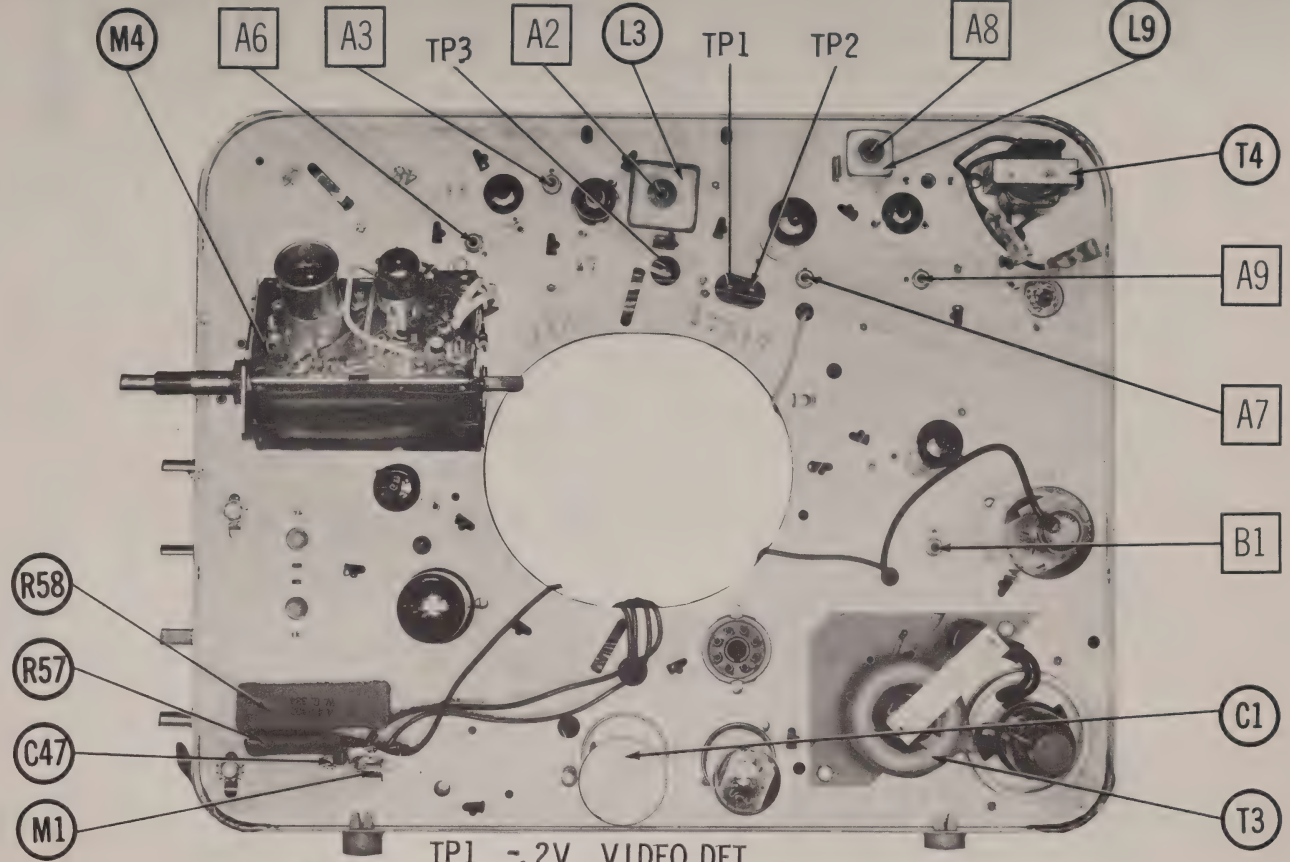
UHF TUNER 25A1193-3





VHF TUNER 25A1216



TP1 -.2V VIDEO DET
TP2 -.2V VIDEO DET OUTPUT
TP3 -.7V IF AGC

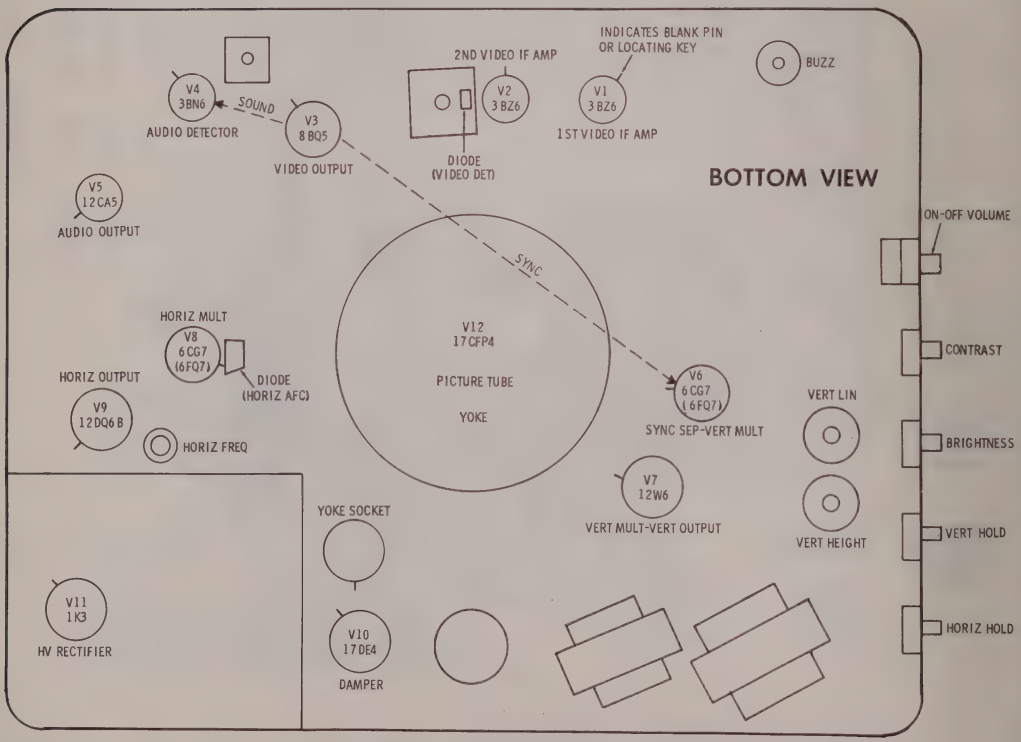
CHASSIS - TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	1meg	56Ω	67Ω	63Ω	†165Ω	†165Ω	0Ω		
V2	3BZ6	.1Ω	180Ω	63Ω	60Ω	†165Ω	†165Ω	0Ω		
V3	8BQ5	NC	330K	•50Ω	60Ω	50Ω	NC	†3600Ω	NC	†16Ω
V4	3BN6	•300Ω	5Ω	67Ω	70Ω	†4700Ω	5Ω	†530K		
V5	12CA5	120Ω	NC	70Ω	80Ω	•50K	†235Ω	†485Ω		
V6	6CG7	†10K	2.2meg	0Ω	40Ω	45Ω	•†5meg	•1.5meg	0Ω	0Ω
V7	12W6	TP	80Ω	†275Ω	†15Ω	• 2meg	TP	90Ω	0Ω	
V8	6CG7	†12K	1.6meg	1200Ω	45Ω	50Ω	†33K	•80K	1200Ω	0Ω
V9	12DQ6B	TP	37Ω	NC	†1200Ω	470K	TP	27Ω	0Ω	TOP CAP †7.5Ω
V10	17DE4	TP	NC	380K	NC	†15Ω	TP	27Ω	7Ω	
V11	1K3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †400Ω
V12	17CFP4	37Ω	6Ω	Pin 6 †56K	Pin 10 †56K	Pin 11 •200K	Pin 12 40Ω			
V201	2CY5	1meg	0Ω	7Ω	5Ω	†15Ω	†8000Ω	0Ω		
V202	5CG8	15K	†5600Ω	0Ω	5Ω	0Ω	†2200Ω	†47K	0Ω	242K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Horizontal Hold control at the center of its range and adjust the Horizontal Frequency Slug (B1) until the picture synchronizes horizontally.

Check horizontal sync on other channels and if necessary, retouch B1 for best sync on all channels.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 screws holding rear cover. Remove rear cover.
2. Remove 7 push-on type knobs on side of cabinet.
3. Remove 2 chassis bolts, 2 screws in upper section of chassis, and 2 screws in AC bracket.
4. Disconnect speaker, yoke plug, high voltage lead, and picture tube socket.
5. Remove chassis.

PICTURE TUBE REMOVAL

1. Disconnect picture tube socket, yoke plug, and hi voltage lead.
2. Remove 6 screws holding cabinet front.
3. Remove cabinet front (with picture tube and mounting assembly).

PHOTOFACT® Folder with CIRCUITRACE®

RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL 192A064MV

RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

SET 553 FOLDER 2

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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MODEL 192A064MV

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	RCA Victor	Models	Chassis	VHF Tuner	UHF Tuner
		192A062MV, 192A064MV	KCS138A	KRK103A	
		192A062MU, 192A064MU	KCS138B	KRK104A	KRK66AJ
MANUFACTURER	Radio Corporation of America, RCA Victor Home Instruments Division, Indianapolis 1, Indiana				
TYPE SET	Television Receiver				
TUBES	VHF - Sixteen, UHF - Seventeen				
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	VHF - 140 Watts, 1.4 Amp. @ 117 Volts AC		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)				

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

It is necessary to remove the picture tube for safety glass cleaning and removal.

FUSE

A 4/10 Amp. (B+) fuse is used for receiver protection. For location, see "Tube Placement Chart".

FUSE DEVICE

A 5Ω fusible resistor is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENT

The oscillator slugs (channels 2 thru 13) are accessible thru holes on the front of the tuner. See "Tuner Alignment" for detailed instructions.

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Waveform Coil Slug (B1). For location, see "Tube Placement Chart".

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

AGC

The AGC may be varied by means of an AGC control. For location, see "Tube Placement Chart".

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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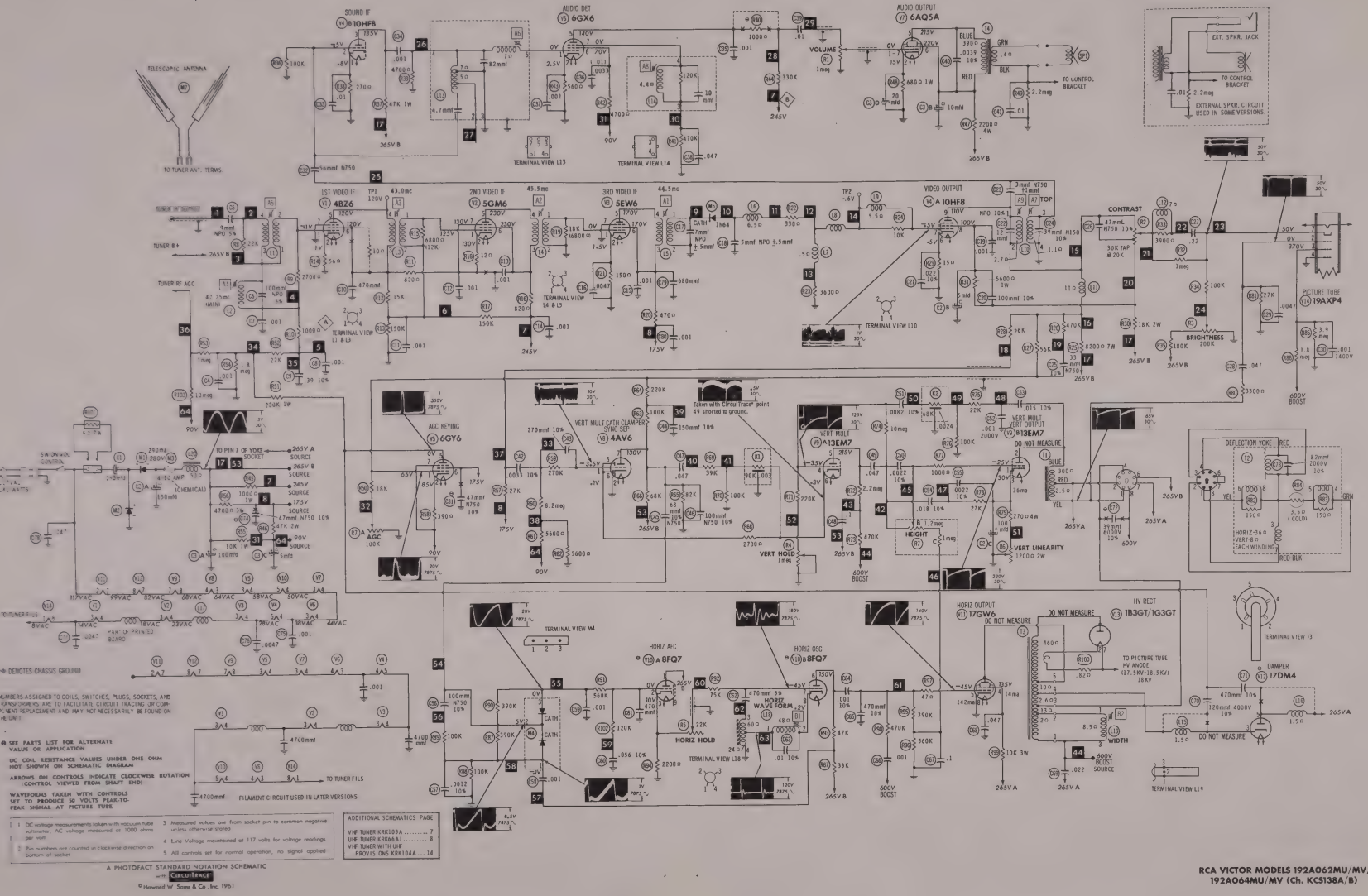
LA112

DATE 11-61 SET 553 FOLDER 2

RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

SET 553 FOLDER 2


SOUND IF
V4 B 10HF8
AUDIO DET
V6 6GX6
AUDIO OUTPUT
V7 6AQ5A
VOLUME
EXT. SPKR. JACK
TO CONTROL BRACKET
EXTERNAL SPKR. CIRCUIT USED IN SOME VERSIONS.
TELESCOPIC ANTENNA
TO TUNER ANT. TERMS.
1ST VIDEO IF
V1 4BZ6
2ND VIDEO IF
V2 5GM6
3RD VIDEO IF
V3 5EW6
VIDEO OUTPUT
V4 A 10HF8
CONTRAST
BRIGHTNESS
PICTURE TUBE
V16 19AXP4
TUNER B+
TUNER RF AGC
AGC KEYING
V5 6GY6
VERT MULT CATH CLAMPER SYNC SEP
V8 4AV6
VERT MULT
V9 A 13EM7
VERT MULT VERT OUTPUT
V10 B 13EM7
DEFLECTION YOKE
HEIGHT
VERT LINEARITY
VERT HOLD
HORIZ OUTPUT
V11 17GW6
HV RECT
V12 1B3GT/1G3GT
HORIZ AFC
V13 A 8FQ7
HORIZ OSC
V10 B 8FQ7
HORIZ WAVE FORM
HORIZ HOLD
WIDTH
DAMPER
V17 17DM4
TO PICTURE TUBE HV ANODE (17.5KV-18.5KV) 18KV
TO CONTROL BRACKET
TO TUNER FILS
FILAMENT CIRCUIT USED IN LATER VERSIONS
TERMINAL VIEW L13
TERMINAL VIEW L14
TERMINAL VIEW L4 & L5
TERMINAL VIEW L3 & L3
TERMINAL VIEW L10
TERMINAL VIEW M4
TERMINAL VIEW L18
TERMINAL VIEW T3
TERMINAL VIEW L19
DO NOT MEASURE
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket.
3 Measured values are from socket pin to common negative unless otherwise stated.
4 Line Voltage maintained at 117 volts for voltage readings.
5 All controls set for normal operation, no signal applied.
ADDITIONAL SCHEMATICS PAGE
VHF TUNER KRK103A 7
VHF TUNER KRK8AJ 8
VHF TUNER WITH UHF PROVISIONS KRK104A ... 14
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
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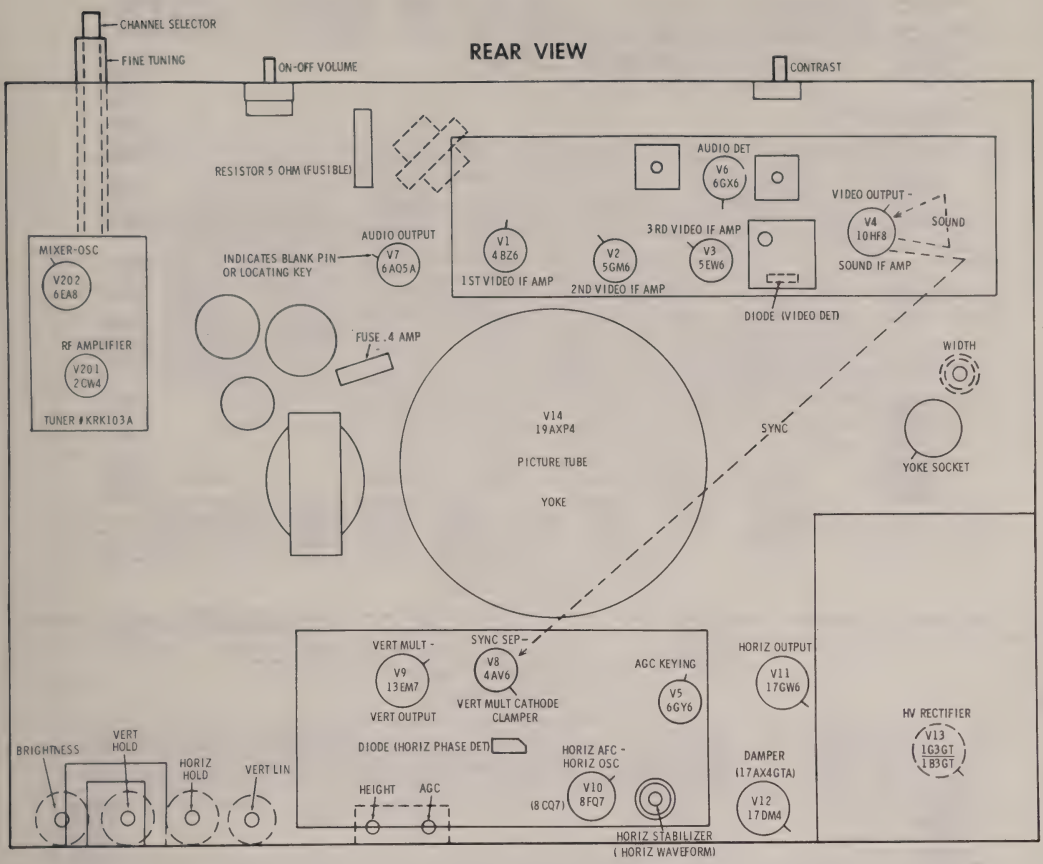
RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

TUBE PLACEMENT CHART



RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS138A/B)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

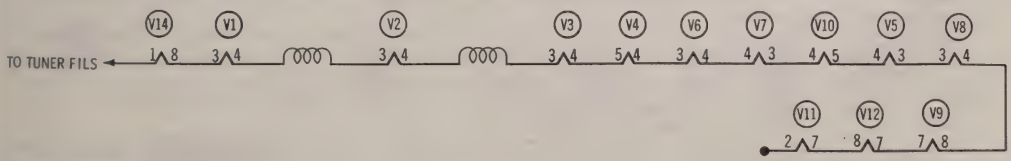
POWER SUPPLY FAILURE
No raster, no sound Rectifiers M1, M2; Fuse (B_+)

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14
No vertical deflection V8, V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, M1, M2
Vert. off freq. V9
Horiz. off freq. Diode (Horiz. Phase Det.), V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V8
No horiz. sync V8
No vert. or horiz. sync V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use and ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
Allow a 20 minute warm-up period for the receiver and test equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 6 volt bias supply to point Ⓐ . Positive to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru 1500 mmf to Mixer Grid Test Point. Low side to chassis.	44.5MC (Unmod.)	Any non-interfering channel	DC probe to TP-2. Common to chassis.	A1	Adjust for maximum deflection. Adjust generator output for 3 volts on meter when finally peaked.
2.	"	45.5MC	"	"	A2	"
3.	"	43.0MC	"	"	A3	"
4.	"	47.25MC	"	"	A4	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect a .001mfd Capacitor in series with a 180Ω Resistor from TP-1 to chassis with the Capacitor connected to TP-1.
The Vert. Amp. of the scope is to be connected thru a demodulator probe to the junction of the resistor and capacitor.
Couple the signal generator loosely to sweep output cable to provide markers.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru 1500 mmf to Mixer Grid Test Point. Low side to chassis.	45.0MC (10MC Swp.)	42.5MC 45.75MC	4	High side thru demodulator probe to junction of 180Ω and .001mfd. Low side to chassis. Calibrate scope for 0.5 volts peak to peak.	A5 and Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Remove the 180Ω resistor and .001 mfd capacitor from TP-1 and chassis.
6.	"	"	42.5MC 45.0MC 45.75MC	"	Vert. Amp. thru 10K to TP-2. Low side to chassis. (Across Video Detector load). Calibrate scope for 5 volts peak to peak.	A1, A2, A3	Check for response similar to Fig. 2. If necessary, retouch A1, A2 and A3 for desired response.
7.	High side thru pad (Fig. 3) to Mixer Grid Test Point. Low side to chassis.	Not Used	45.75MC	"	Use VTVM DC probe to TP-2. Common to chassis.		Adjust signal generator output to provide exactly 1.5 volts on VTVM.
8.	Remove pad. High side of generator to Mixer Grid Test Point directly. Low side to chassis.	"	41.25MC	"	"	A1, A3	Retouch A1 and A3 for 1.2 to 1.5 volts on VTVM.
9.	Across antenna terminals thru matching network (Fig. 4).	Each VHF channel in turn.	42.5MC 45.0MC 45.75MC	All VHF Channels	Vert. Amp. thru 10K to TP-2. Low side to chassis.	A1, A2	Check for response similar to Fig. 2 for each channel. If necessary, retouch A1 and A2 SLIGHTLY to correct tilt or other conditions that are approximately the same on all channels.

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ . Positive to chassis.
Set VTVM to read negative voltage.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	High side thru .001 mfd to TP-2. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel	DC probe thru diode probe (Fig. 5) to pin 7 (grid 3) of Audio Det. Common to chassis.	A6, A7	Adjust for maximum negative voltage on VTVM. Attenuate generator for a reading between 1.0 and 1.5 volts on VTVM when finally peaked.

11. Remove VTVM and Diode Probe.. Connect scope across Volume control. Turn off signal generator and tune in the strongest TV station in the area and adjust the Volume control for Normal volume. Preset slug A8 flush with top of coil form. While observing scope and listening to the sound, adjust A8 clockwise to a peak. Continue turning clockwise to a second louder peak and adjust for maximum volume at the second peak.

4.5MC TRAP ALIGNMENT

Set Contrast control fully clockwise.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	High side thru .01 mfd to TP-2. Low side to chassis.	4.5MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru demodulator probe to cathode of picture tube. Low side to chassis.	A9	Adjust for MINIMUM 400∿ indication on scope.

WAVEFORMS ON PAGE 17

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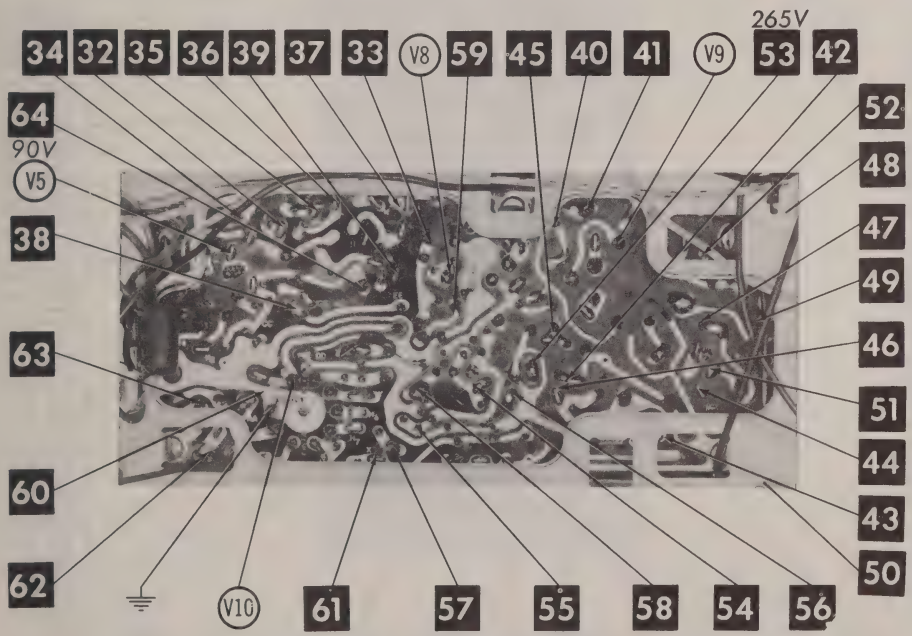
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

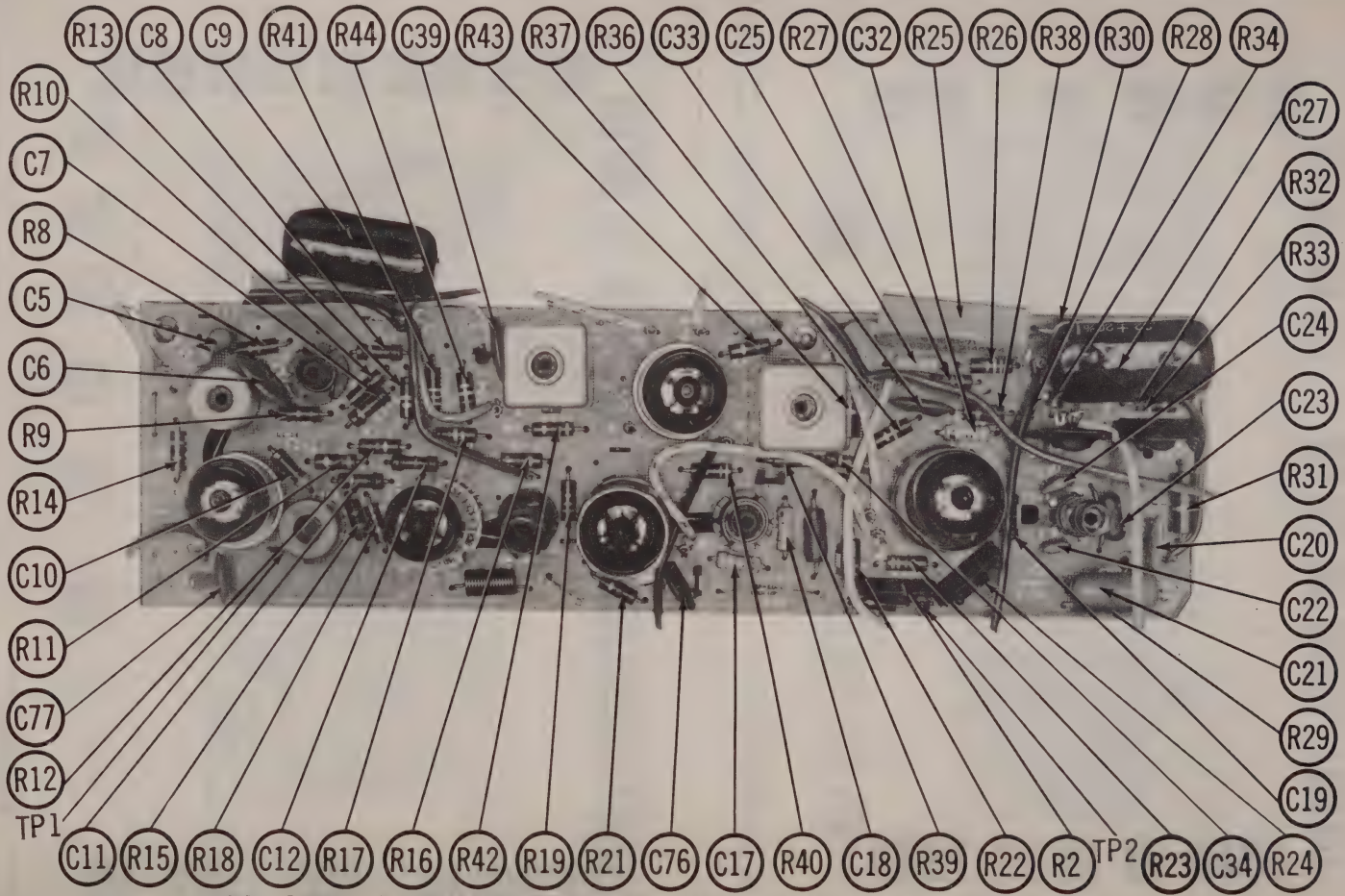
VIDEO, SOUND PRINTED BOARD



A Howard W. Sams CIRCUITRACE® Photo

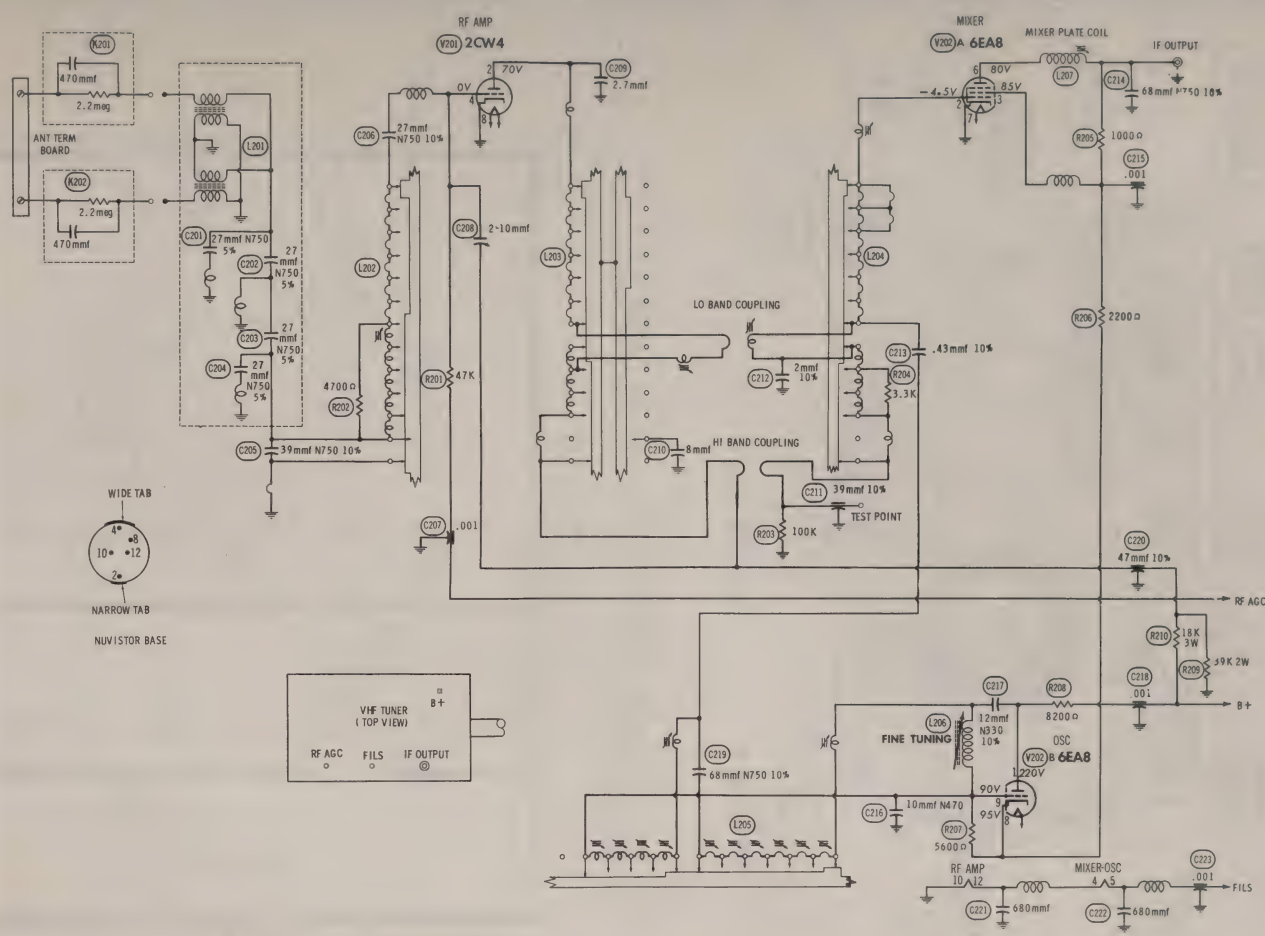
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

AGC, SYNC, SWEEP PRINTED BOARD



TP1 120V 1ST VIDEO IF PLATE TP2 -.6V VIDEO OUTPUT GRID

VIDEO, SOUND PRINTED BOARD



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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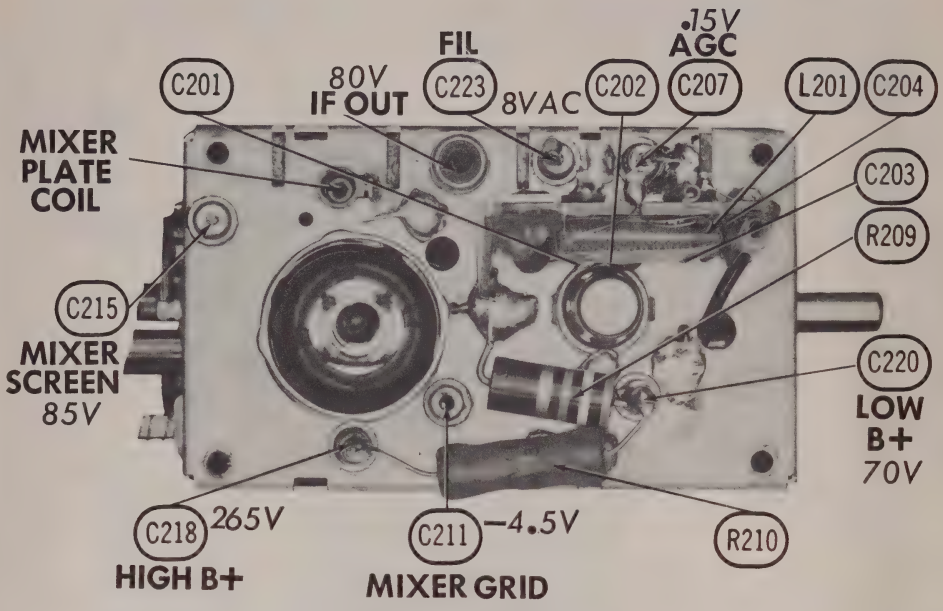
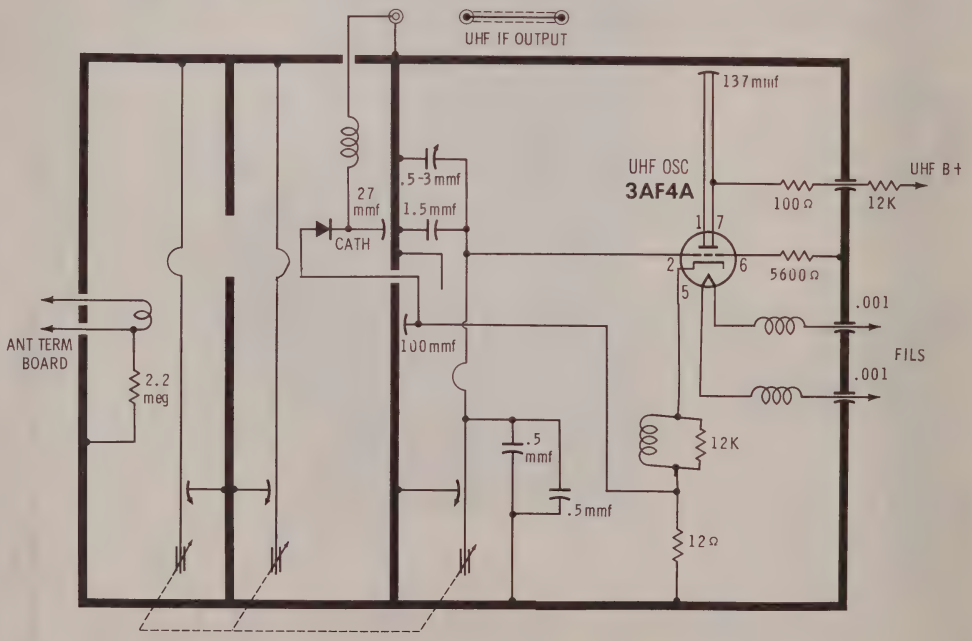
VHF TUNER KRK103A

RCA VICTOR MODELS 192A062MU/MV, 192A064MU/MV (Ch. KCS139A/B)



VHF TUNER KRK103A —TOP VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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UHF TUNER KRK66AJ

VHF TUNER PARTS LIST AND DESCRIPTIONS

KRK103A

TUBES

• GENERAL ELECTRIC •		RAYTHEON • SYLVANIA •			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	2CW4	V202	Mixer - Osc.	6EA8

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C202	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C203	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C204	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C205	39 N750 10%			TCN-39	C10Q39U	CCTN-390	CN7-439	10TCU-Q39
C206	27 N750 10%			TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C207	.001		EF-001	MFT-1000		CCF-102	CT280A	
C208	2-10	#112038		829-10				
C209	2.7		NPO-SI 3.0		C10V3C			10TCC-V27
C210	8		NPO-DI 8.2		C10V8C			10TCC-V82
C211	39 10%	#112040						
C212	2 10%		NPO-SI 2.0	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C213	.43mmf 10%	#109350						
C214	68 N750 10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C215	.001		EF-001	MFT-1000		CCF-102	CT280A	
C216	10 N470	#109572				*		
C217	12 N330 10%	#112042				*		10TCS-Q12
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	68 N750 10%		N750-DI 68	DTN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C220	47 10%	#112039						
C221	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C222	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C223	.001		EF-001	MFT-1000		CCF-102	CT280A	

RCA Victor Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R201	47K				R206	2200Ω			
R202	4700Ω				R207	5600Ω			
R203	100K				R208	8200Ω			
R204	3300Ω				R209	39K 2W			
R205	1000Ω				R210	18K 3W	PW3-18K	3G-18K	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA Victor PART No.	REPLACEMENT DATA
K201	Antenna Filter	470mmf, 2.2meg	109956	Centralab RC-471 Sprague AC1-1
K202	Antenna Filter	470mmf, 2.2meg	109956	Centralab RC-471 Sprague AC1-1

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Trans.	112050	Assembly
L202	Antenna	112049	Channel 2-13, Includes Wafer Assembly
L203	RF	112048	"
L204	Mixer	112047	"

ITEM No.	USE	RCA Victor PART No.	NOTES
L205	Oscillator	112045	Channel 2-13 Includes Wafer Assembly
L206	Fine Tuning	112044	
L207	Mixer Plate	112043	

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	1st Video IF Amp.	4BZ6
V2	2nd Video IF Amp.	5GM8
V3	3rd Video IF Amp.	5EW8
V4	Video Output - Sound IF Amp.	10HF8
V5	AGC Keying	6GY8
V6	Audio Detector	6GX6
V7	Audio Output	6AQ8A

ITEM No.	USE	TYPE
V8	Sync Separator - Vert. Mult. Cath. Clamper	4AV6
V9	Vert. Mult. - Vert. Output	13EM7
V10	Horiz. AFC + Horiz. Osc.	8FQP (6CG7) *
V11	Horiz. Output	17GW6
V12	Damper	17DM4 (17AX4GTA) *
V13	HV Rectifier	1G3GT/1B3GT

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V14	19AXP4		19AXP4 ①		19AXP4 ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	150	300	107472	AFH-25-70		XCI-34	WP125.9	TD-150-300	TVLS-1539 *
C2A	▲150	350	109833	AFH3-113-77	B0334	XC3-12	WP430.25	TMD-3440	TVL-2643
B	■5	350			BR1005	QT1-23		TD-100-50	TVA-1310
C	▲100	50							
C3A	▲100	350	109889	AFH4-56-60	D0473.3	XC4-14	FP420.405	TMQ-4368	TVL-4632
B	■10	350							
C	▲5	150							
D	20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C5	9 NPO 5%	(9.5) †	NPO-SI 10	TCZ-10	C10V9C	CCTO-100	CNO-410	10TCC-Q10
C8	100 NPO 5%		DTZ-100	C10T1C			CNO-310	10TCC-T10
C7	.001		DI-103	BYA10D1		CCD-103	B-210	5HK-D10
C8	.001		DI-100	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	.39 200V 10%							
C10	.470		SI 470	D6-470	BYA10T47	CCD-471	B-347	10TS-T47
C11	.001		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D1
C12	.001		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D1
C13	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D1
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D1
C15	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D1
C16	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C17	7 NPO ±.5mmf		NPO-SI 6, 8	TCZ-6R8	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C18	5 NPO ±.5mmf		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C19	.001		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C20	100	10%	DI-100	DI-101	L10T1	CCD-101	GP310	10TS-T10
C21	.022 200V 10%		VM-CB223-10%	PM4S22	4DP-2-223	GEM-4812	XTM-S23	
C22	13 NPO 10%			TCZ-12	C10Q13C	CCTO-130	CNO-612	10TCC-Q12
C23	3 N750 ±.5mmf			TCN-3R3			CNT-533	10TCC-V33
C24	39 N150 10%	(8.08)‡			*			10TCP-Q39
C25	33 N750 10%		N750-SI 33	TCN-33	C10Q33U	CCTN-330	CNT-633	10TCU-Q33
C26	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CNT-447	10TCU-Q47
C27	.22 600V				CUB6P22	6DP-5-224	GEM-6022	6TM-P22
C28	.047 400V			DD-503	CUB4S47	4DP-3-473	GEM-6147	4TM-S47
C29	.0047 600V			DD-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C30	.001 1400V			DD30-102	HVB10A	3CCD-102	UAC-210	BL-D10
C31	47 N750 10%	Note 1	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CNT-447	10TCU-Q47
C32	56 N750		N750-SI 56	DTN-56	C10Q56U	CCTN-560	CNT-456	10TCU-Q56
C33	.01		BPD-01	DD-103	BYA10E	CCD-103	B-110	5HK-S10
C34	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C35	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C36	.0033	(.01) †	BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C37	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C38	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C39	.01		BPD-01	DD-103	BYA10E	CCD-103	B-110	5HK-S10
C40	.0039 10%		DI-4000		DPM3S6D4	CCD-392	JL-239	10TS-D39
C41	.01		BPD-01	DD-103	BYA10E	CCD-103	B-110	5HK-S10
C43	.0033 600V 10%		VM-CB33-10%	PM6D33	6DP-1-332	GEM-16233	6TM-D33	
C43	270 10%		DI-270	DT-271	L10T27	CCD-271	GP327	10TS-T27
C44	150 10%		DI-151	DT-151	L10T15	CCD-151	GP315	10TS-T15
C45	68 N750 10%		N750-DI 68	DTZ-68	C10Q68U	CCTN-680	CNT-468	10TCU-Q68
C46	100 N750 10%		N750-DI 100	DTZ-100	C10T1U	CCTN-101	CNT-310	10TCU-T10
C47	.047 400V		P488S-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C48	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C49	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C50	.0022 400V 10%				P3M2D22	CCD-222	GP-222	10TS-D22
C51	.0082 400V 10%				DPM3S6D82	6DP-2-822	GEM-16282	6PS-D82
C52	.001 3000V			DD30-102	HVB2D1A	3CCD-102	HV-210	BL-D10
C53	.015 600V 10%				P3M5S15	6DP-2-153		6TM-S15
C54	.018 400V 10%				P3M4S2	6DP-2-203	GEM-4812	6TM-S20
C55	.0022 600V 10%				P3M5D22	6DP-1-223	GEM-16223	6TM-D22
C56	100 N750 10%		N750-DI 100	DTN-100	C10T1U	CCTN-101	CNT-310	10TCU-T10
C57	.0012 10%		DI-1200	DD-122	1R5D12	CCD-122	GP312	10TS-D12
C58	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C59	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-110	5HK-D10
C60	.056 200V 10%				6PM3S5S6	6DP-2-563		6PS-S56
C61	470		DI-470	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C62	470 5%		1469-00047		5RST47	CM-1RB-47J	MC1244	MS-347
C63	.01 400V 10%		VM-CB1-10%		PM4S1	4DP-1-103	GEM-1611	4TM-S10
C64	.001 10%		DI-1000	DD-102	5RS1D	CCD-102	GP210	10TS-D10
C65	470 10%		1469-00047		5RST47	CCD-471	MC1244	MS-347
C66	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C67	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C68	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C69	.022 600V		P688N-022	DD-303	CUB6S23	6DP-3-223	GEM-6122	6TM-S22
C70	120 4000V 10%	#109930						
C71	470 10%		DI-470	DD-471	5R5T47	CCD-471	GP347	10TS-T47
C72	39 600V 10%	Note 1					6DY-439	
C73	82 2000V 10%				HVB20Q82	VCM-20-820K	2DY-482	
C74	47 N750 10%	Note 1	N750-DI 47	DTN-47	C10Q47U	CCTN-470	CNT-447	10TCU-Q47
C75	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C76	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C77	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C78	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C79	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C80	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

† Value used in later production chassis.
‡ RCA Victor Part Number
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

Note 1. May not be used in some versions.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	109938	BPL-70	C47S-1meg-Z	B13-137 *	PP16A	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	Not Req.	Not Req.	Not Req.	Push-Pull Off-On
R2A	30K	½	109937			B20-121X		Contrast
	30K Tap							
B	Shaft					SKL		
R3A	200K	½	109934	TT-46	B47-200K-S	B11-129	TA254L	Brightness
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R4A	1meg	½	109936	TT-89	B47-1meg-S	B11-137	TA16L	Vert. Hold
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R5A	22K	½	109935	TT-26	B47-25K-S	B11-120	TA253L	Horiz. Hold
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	
R6A	1200Ω	2(WW)	109939	WN-152	A43-1500	WPB1500	RI500L	Vert. Linearity
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R7A	100K	1/4	109957					AGC
B	1.2meg	1/4						Height
C	1meg	1/10						Height Limiter

* Factory assembled part #PPQ13-137 (SK7).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R8	22K 5%			
R9	2700Ω 5%			
R10	1000Ω			
R11	820Ω			
R12	15K			
R13	150K 5%			
R14	560 5%			
R15	6800Ω			(12Ω) *
R16	820Ω			
R17	150K 5%			
R18	12Ω 5%			
R19	18K			(6800Ω) *
R20	4700			
R21	150Ω 5%			
R22	330Ω			
R23	3600Ω 5%			
R24	10K			
R25	8200Ω 7W	PW7-8200	7G-8200	
R26	100K			
R27	56K			
R28	56K			
R29	15Ω			
R30	18K 2W			
R31	5600Ω 1W			
R32	1meg			
R33	3900Ω			
R34	100K			
R35	180K			
R36	100K			
R37	47K 1W			
R38	2700			
R39	4700Ω			
R40	1000Ω			Note 1
R41	470K			
R42	4700Ω			
R43	560Ω			
R44	330K			
R45	1000Ω 1W			
R46	47K 2W			
R47	2200Ω 4W	PW4-2200	5W-SQ-2200	
R48	680Ω 1W			
R49	2.2meg			
R50	18K			
R51	220K 1W			
R52	22K			
R53	1meg			
R54	1.8meg			
R55	10K 1W			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R56	4700Ω 3W	PW3-4700	3G-4700	
R57	27K			
R58	390Ω			
R59	270K			
R60	8.2meg			
R61	5600Ω			
R62	5600Ω			
R63	100K			
R64	220K			
R65	82K			
R66	68K			
R67	33K			
R68	2700Ω			
R69	39K			
R70	100K			
R71	220K			
R72	2.2meg			
R73	470K			
R74	10meg			
R75	22K			
R76	100K			
R77	10000			
R78	27K			
R79	270Ω 4W	PW4-270	5W-SQ-270	
R80	3300Ω			
R81	27K			
R82	150Ω			
R83	150Ω			
R84	3.5Ω (Cold)			#107464
R85	3.9meg			
R86	1.8meg			
R87	390K			
R88	100K			
R89	100K			
R90	390K			
R91	560K			
R92	75K 5%			
R93	47K			
R94	2200Ω			
R95	390K			
R96	560K			
R97	470			
R98	470K			
R99	10K 3W	PW3-10K	3G-10K	
R100	.82Ω			
R101	5Ω 7W	PW7-5	7W-SQ-5	#100117B
R102	120K			
R103	10meg			

* Value used in early production chassis. Note 1. May not be used in some versions. ‡ RCA Victor Part Number

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA Victor PART No.	REPLACEMENT DATA
K1	Vert. Integrator	.003mfd, 90K	109336	Centralab PC-407 Sprague Y-15
K2	Vert. Feedback	.0024mfd, 68K	109325	Centralab PC-408 Sprague Y-14

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	1st Video IF	107202				TA247	
L2	47.25MC Trap	107203				TA250	
L3	2nd Video IF	109071				TB298	
L4	3rd Video IF	108156				TB297	
L5	4th Video IF	104233				TA246	
L6	Peaking (36uh)	109758	TV-180	6176	RTC-8593	T301	
L7	Peaking (250uh)	109944	TV-185	6181	RTC-8596	T346	
L8	RF Choke (2.7uh)	107463	SW-630	4606	RTC-8517	T84	
L9	Peaking (72uh)	109943	TV-186	6172	RTC-8590	T339	
L10A	4.5MC Trap	109949	TV-238 †	1471-A †			† Remove Caps.
B	1st Sound IF						
L11	Peaking (290uh)	109945	TV-199	6155	RTC-8587	T348	
L12	Peaking (180uh)	109946	TV-184	6180	RTC-8597	T344	
L13	2nd Sound IF	109951					
L14	Quadrature	109948					
L15	RF Choke (8.2uh)	107385	BC-566	4611	RTC-8521	T960	
L16	RF Choke (8.2uh)	107385	BC-566	4611	RTC-8521	T960	
L17	Fil. Choke (1uh)	73477	BC-561	4602	RTC-8515	T855	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	Workman TV PART No.	NOTES
L18A	Horiz. Osc.	109947							
B	Horiz. Stabilizer								
L19	Width Coil	109942	MWC-6	6322	WC-8	WC-22	WLC-6	T-107	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC. RES.	RATINGS: INDUCTANCE (0 CURRENT 1000 ^C.)	REPLACEMENT DATA: RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L20	.290A	50Ω	.7 Hy.	106386	C-2996 ①	C-2343	26C41	C-27X	① Drill new mounting hole(s).

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	109685		VO-101	26H4	A-140X	① Use original damping network if necessary.
T2	Yoke (Horiz. 18MH) (114°) (Vert. 15MH)	109532		DY-26A ①	Y-47 ①	Y-60-1	
	Centering Magnet	107192					
	Yoke Clamp	104409					
T3	Horiz. Output	109954					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	8200Ω	3-4Ω	109950	A-2900 ①	A-3856 ①	24S59	S-8X	① Drill new mounting hole(s).

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: RCA Victor PART No.	QUAM PART No.	NOTES
SP1	3½" x 5"	PM	3-4Ω	107262	35A05	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: RCA Victor PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.290A	106379	1N1763	40H	
M2	.290A	106379	1N1763	40H	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	Chemical	4/10A	109588	109941				

PARTS LIST AND DESCRIPTIONS (Continued)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M4 M5	1N64	109328 * 76675B ♦	6GC1 *	1N64	* Dual Selenium, Common Cathode Type ♦ Crystal Diode, Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M6	Tuner	KRK103A	VHF, Complete (Ch. KCS138A)
	Tuner	KRK104A	VHF with UHF Provisions (Ch. KCS138B)
	Tuner	KRK66AJ	UHF (Ch. KCS138B)
M7	Antenna, VHF	109920	Telescoping (2 Required) JFD REPLACEMENT Type #TA543

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODEL NO. 192A062MV	192A062MU	192A064MV	192A064MU
Safety Glass	109019	X	X	X	X
Mask-Black Shell Gray	109908	X			
Mask- " "	109909		X		
Mask-Tuskon Ivory/Gold	109910			X	
Mask- " "	109911				X
Dial-UHF Channel Indicator	109929		X		X
Knob-VHF Channel Selector	109926	X	X		

DESCRIPTION	PART NO.	MODEL NO. 192A062MV	192A062MU	192A064MV	192A064MU
Knob- "	109925			X	X
Knob-UHF Channel Selector	109924		X		X
Knob-Fine Tuning	109927	X	X		
Knob- "	109928			X	X
Knob-Contrast, Volume	109922	X	X		
Knob- " "	109923			X	X
Handle-Tuskon Ivory	*109917			X	X

* May be used for Models 192A062MV/MU

WIRING DATA

High Voltage Lead	Use BELDEN No. 8859
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

VHF TUNER ALIGNMENT INSTRUCTIONS

VHF OSCILLATOR ALIGNMENT

Set Fine Tuning so that the Channel 13 Oscillator Adjustment Slug may be reached thru the hole in the Fine Tuning cam. Turn receiver on and tune in highest channel operating in the area. Adjustments must be made in descending order from the highest channel operating in the area to the lowest. Adjust proper slug for best picture and sound. See Fig. 201 for proper adjustment screw location.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

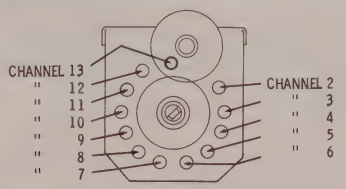
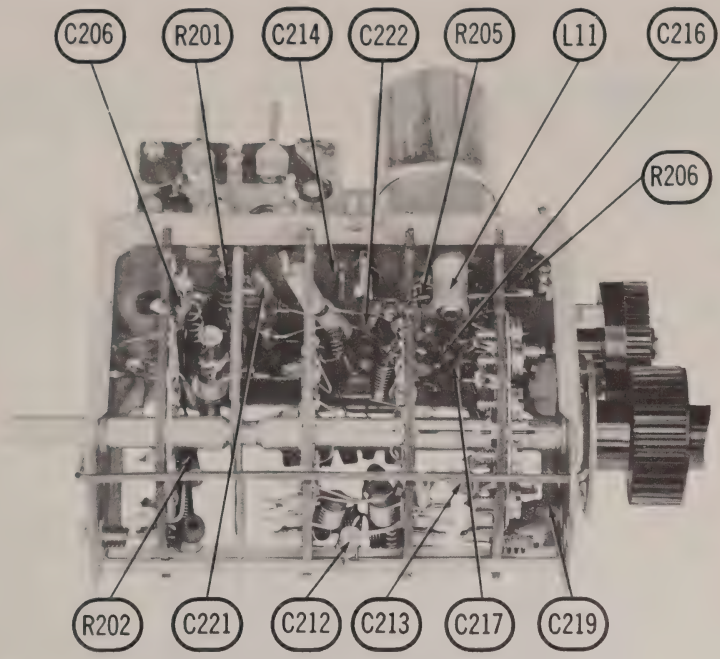
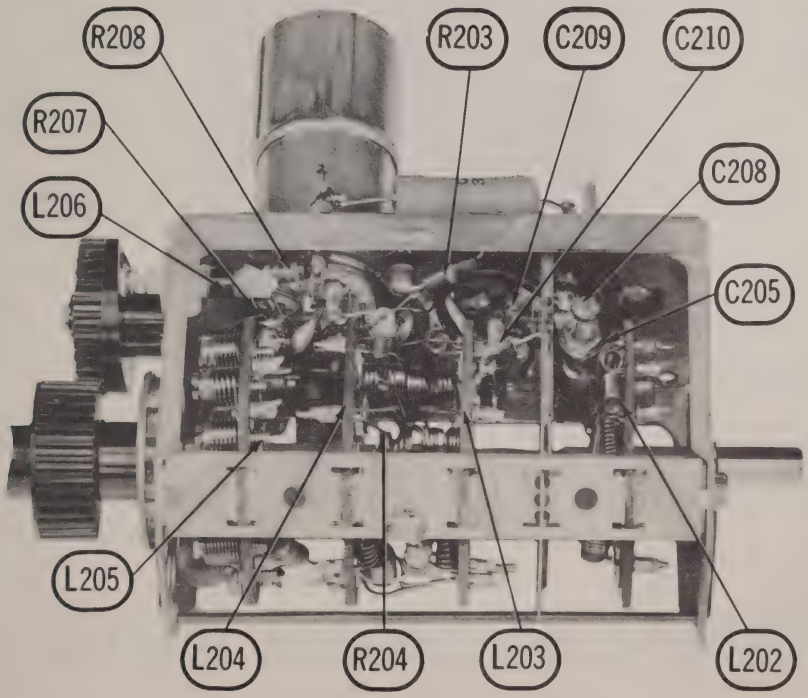


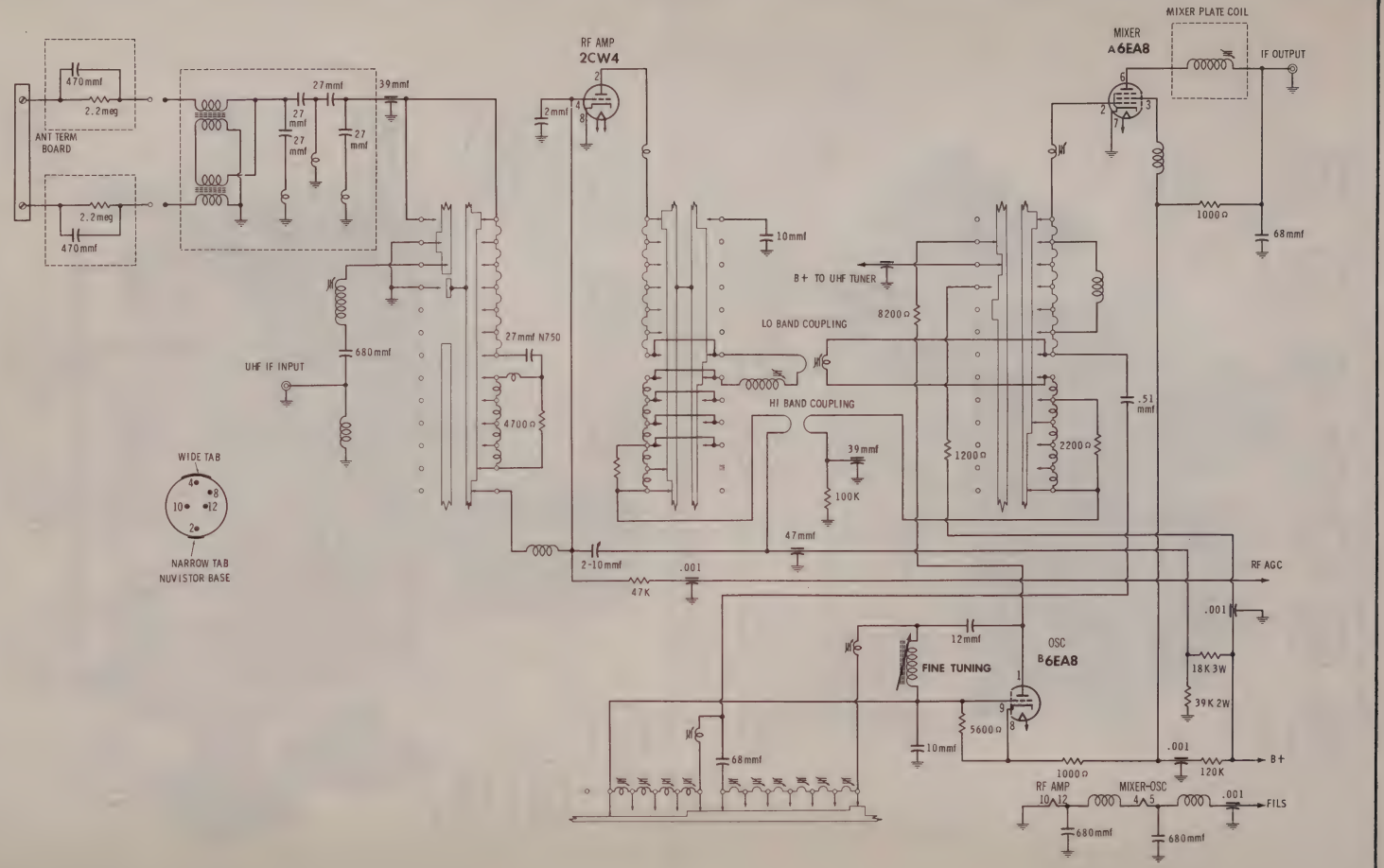
FIG. 201



VHF TUNER KRK103A - LEFT SIDE



VHF TUNER KRK103A - RIGHT SIDE



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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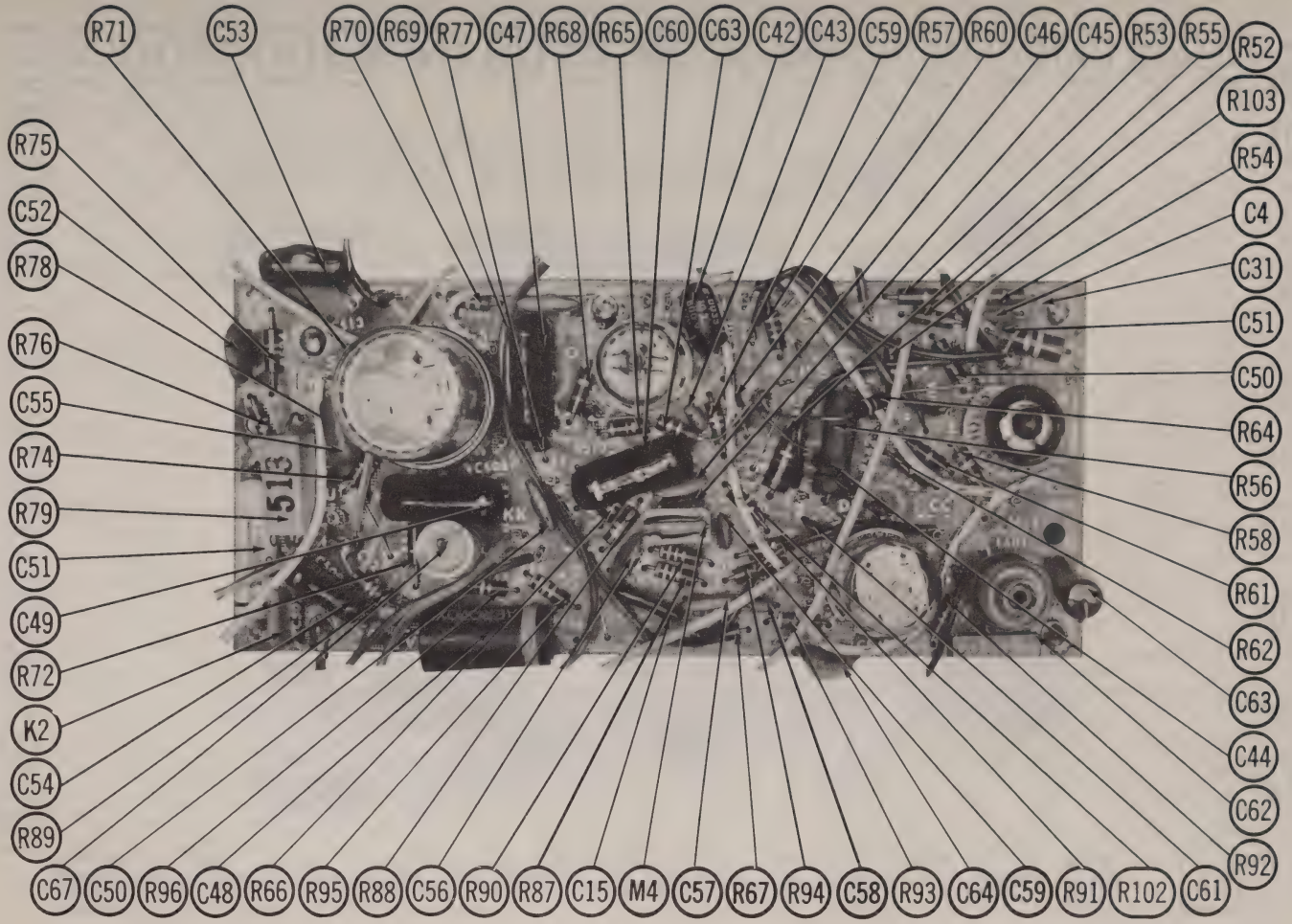
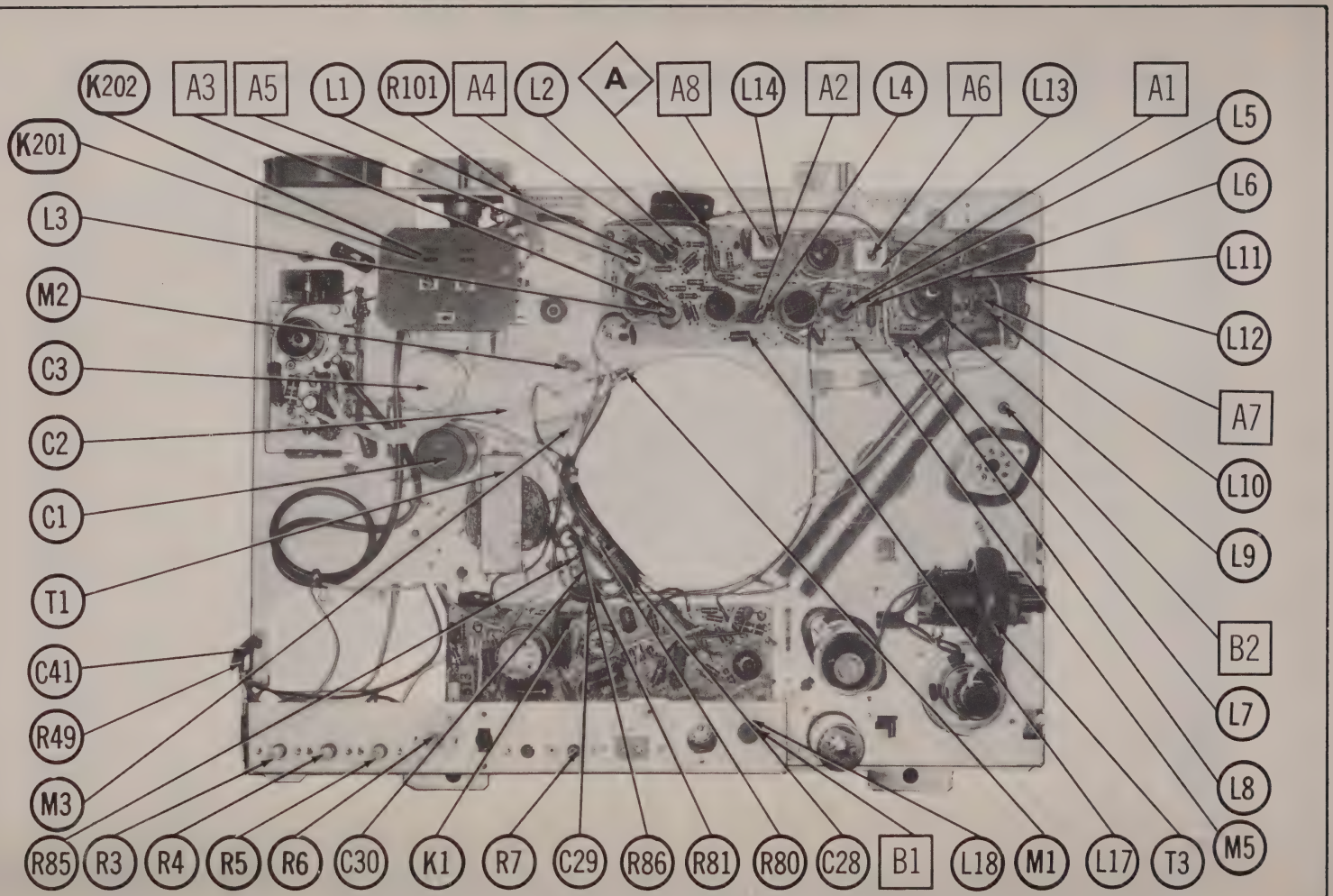
VHF TUNER WITH UHF PROVISIONS - KRK104A



AGC, SYNC, SWEEP PRINTED BOARD

RCA VICTOR MODELS 192A062MU/MV,
192A064MU/MV (Ch. KCS139A/B)

FOLDER 2



CHASSIS - REAR VIEW

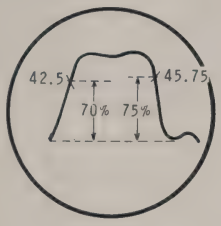


FIG. 1

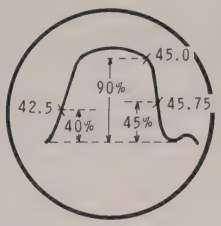


FIG. 2

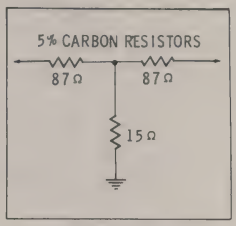


FIG. 3

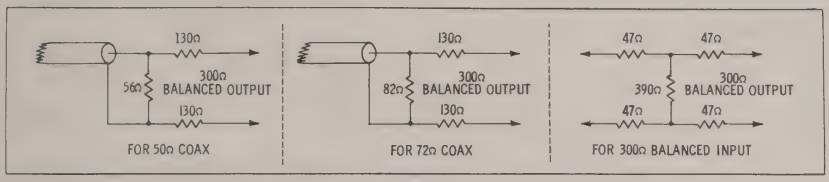


FIG. 4

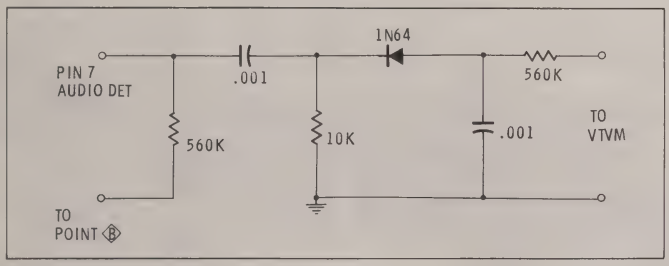
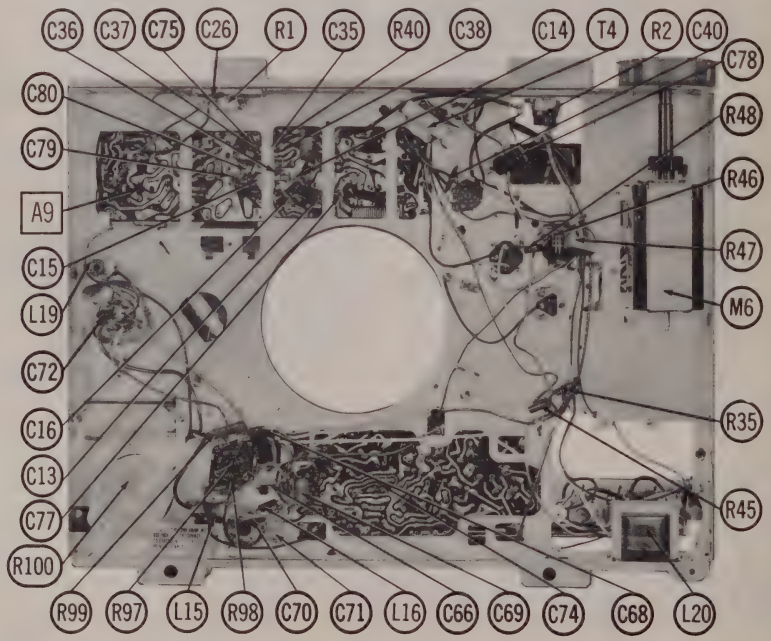


FIG. 5

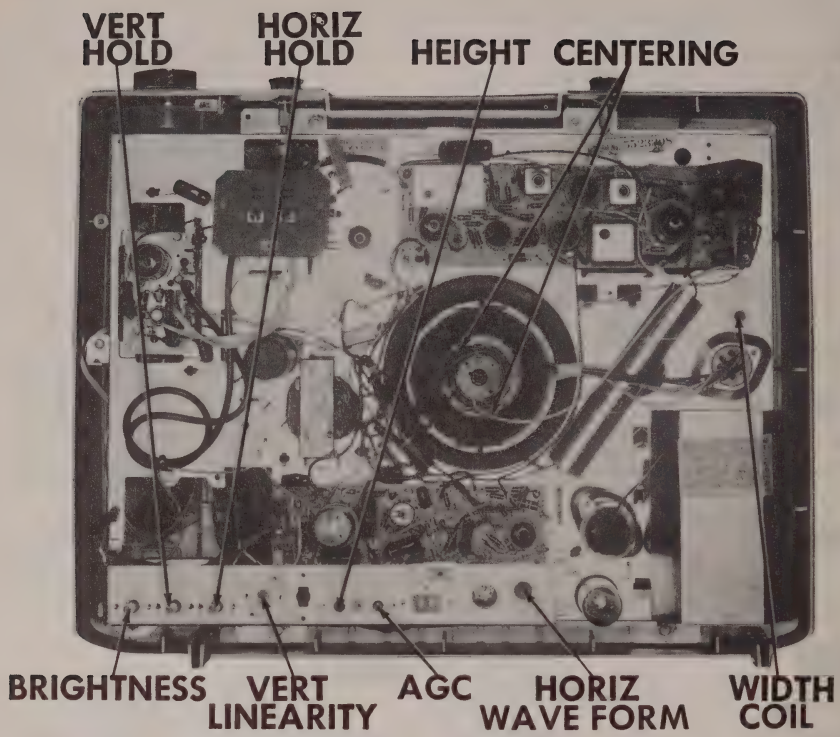
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4BZ6	1.8meg	56Ω	10Ω	13Ω	▪830Ω	▪830Ω	0Ω		
V2	5GM6	80K	955K	13Ω	17Ω	†1800Ω	†1800Ω	95K		
V3	5EW6	.1Ω	150Ω	17Ω	22Ω	†4400Ω	†4400Ω	0Ω		
V4	10HF8	270Ω	100K	†47K	30Ω	22Ω	15Ω	3600Ω	†2000Ω	†6500Ω
V5	6GY6	•31K	†10K	50Ω	45Ω	2meg	†3900Ω	†10K		
V6	6GX6	14Ω	560Ω	30Ω	35Ω	†330K	†12K	470K		
V7	6AQ5A	NC	680Ω	40Ω	35Ω	†2600Ω	†2200Ω	•10K		
V8	4AV6	8.5meg	0Ω	50Ω	53Ω	193K	193K	†35K		
V9	13EM7	• 1.8meg	†350Ω	• 750Ω	• 800K	†2.7meg	190K	63Ω	53Ω	
V10	8FQ7	†50Ω	1.4meg	2200Ω	40Ω	45Ω	†80K	•90K	72Ω	0Ω
V11	17GW6	TP	83Ω	TP	†10K	950K	TP	73Ω	0Ω	TOP CAP †12Ω
V12	17DM4	NC	NC	5.6meg	NC	†50Ω	NC	63Ω	73Ω	
V13	1G3GT / 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †470Ω
V14	19AXP4	5Ω	27K	†1.8meg	0Ω	NC	NC	•160K	10Ω	
V201	2CW4	Pin 2 †15K	Pin 4 2.5meg	Pin 8 0Ω	Pin 10 0Ω	Pin 12 1Ω				
V202	6EA8	†8700Ω	100K	▲2200Ω	1Ω	5Ω	▲3200Ω	0Ω	INF	▲5600Ω
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION
▲ MEASURED FROM PIN 8 OF V202.
▪ MEASURED FROM PIN 2 OF V2.
TP TIE POINT



CHASSIS—FRONT VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Before adjusting the Waveform Slug (B1), the width must be properly adjusted.

Set the Horizontal Hold control to the pull-in point. Turn the Width Slug (B2) fully counterclockwise.

With the Brightness control set to normal level, adjust the Width Slug B2 for an overscan of approximately 3/4 inch on each side of the screen at normal line voltage.

Connect a short jumper across the terminals of the Horizontal Waveform (Stabilizer) Coil (L18B) and short the grid (pin 2) of the 8CG7 (V10) to chassis with a small screw driver. Adjust the Horizontal Hold control for an upright picture (may appear to float back and forth across the screen). Remove the jumper from across L18B and adjust B1 to again obtain a picture in an upright position. When B1 is properly adjusted, alternately shorting and removing short should not cause the picture to lose sync but instead cause a slight sideways shift of the picture. Remove the short from the grid of the 8CG7.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs on top of cabinet (and UHF Tuning knobs at side of cabinet on UHF Models).
2. Remove 6 screws in rear cover (Disconnect antenna leads). Remove rear cover.
3. Remove 2 chassis retainer nuts at top of chassis, and 2 chassis bolts at bottom edge.
4. Unplug picture tube socket, yoke plug, anode lead, and speaker leads.
5. Pull chassis straight out.

PICTURE TUBE REMOVAL

It is necessary to remove the chassis for picture tube removal.

PHOTOFACT® Folder with CIRCUITRACE®

BLAUPUNKT MODEL VERONA 2608

BLAUPUNKT MODEL
VERONA 2608

BLAUPUNKT MODEL
VERONA 2608

TRADE NAME	Blaupunkt Model Verona 2608
IMPORTER	N. Pickens Import Co., 64-01 Woodside Ave., Woodside 77, N. Y.
TYPE SET	AC Operated 6 Tube FM-BC-SW Receiver
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 44 Watts, .4 Amp. @ 117 Volts AC
TUNING RANGES — BROADCAST	515-1620KC FREQ. MOD. 88-108MC SHORT WAVE 5.95 — 18.2MC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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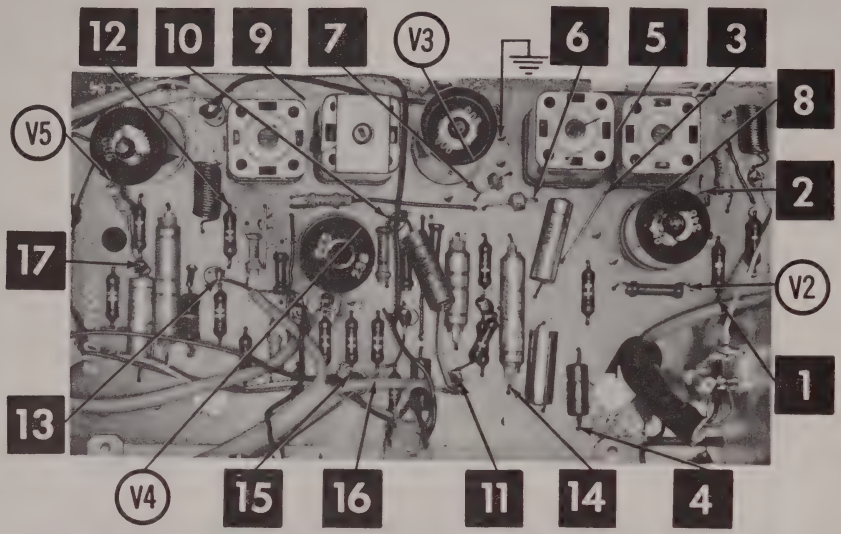
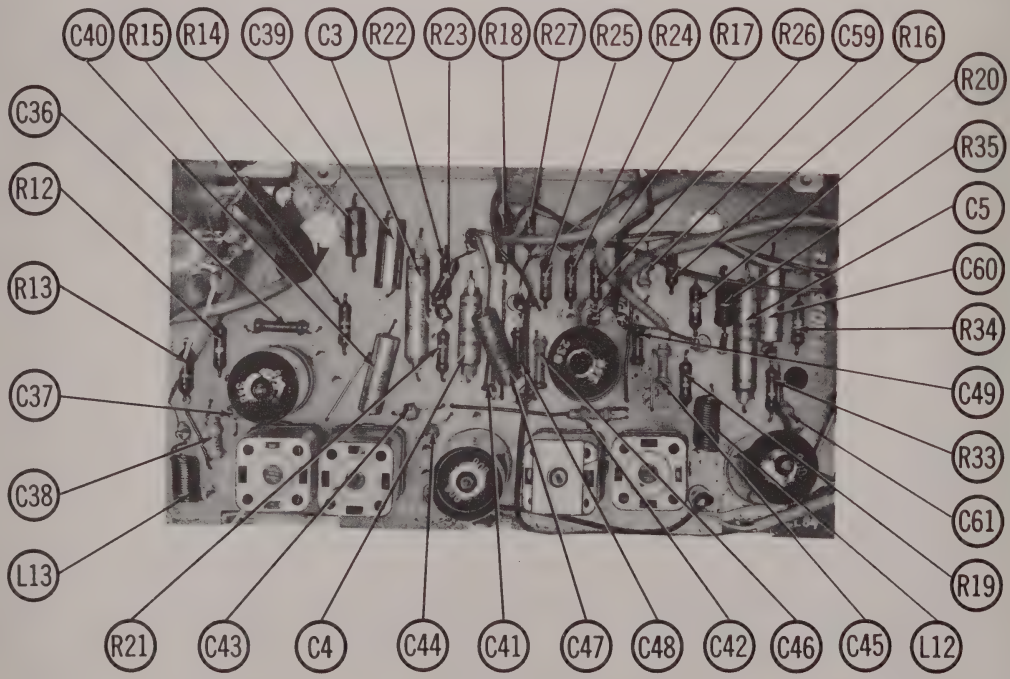


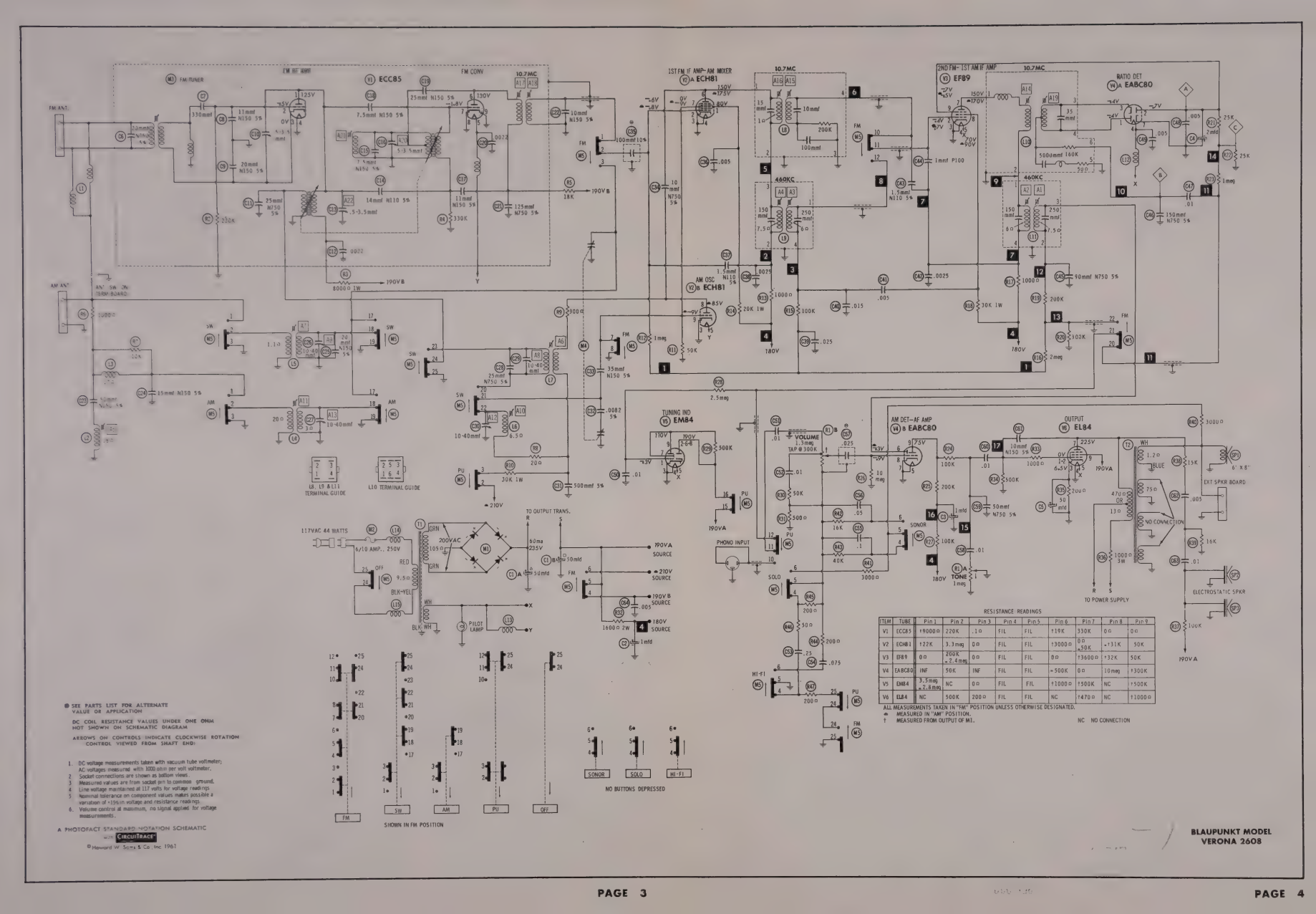
A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†9000Ω	220K	.1Ω	FIL	FIL	†19K	330K	0Ω	0Ω
V2	ECH81	†22K	3.3meg	0Ω	FIL	FIL	†3000Ω	0Ω ⇄50K	⇄31K	50K
V3	EF89	0Ω	200K ⇄2.4meg	0Ω	FIL	FIL	0Ω	†3600Ω	†32K	50K
V4	EABC80	INF	50K	INF	FIL	FIL	⇄500K	0Ω	10meg	†300K
V5	EM84	3.5meg ⇄2.8meg	NC	0Ω	FIL	FIL	†1000Ω	†500K	NC	†500K
V6	EL84	NC	500K	200Ω	FIL	FIL	NC	†470Ω	NC	†1000Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
⇄ MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.

NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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BLAUPUNKT MODEL VERONA 2608

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools:
A1 Thru A4.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5, A6, A7, A10, A11, A17, A18, A21..GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A8, A9, A12, A13, A20, A22.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528
A14, A15, A16, A19.....GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	460KC (400~ 30% AM)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	High side to external AM antenna socket. Low side to chassis.	"	600KC	"	A5	Adjust for MINIMUM output.
3.	"	6MC	(SW) 6MC	"	A6, A7	Adjust for maximum output.
4.	"	18MC	18MC	"	A8, A9	"
5.	"	550KC	(AM) 550KC	"	A10, A11	"
6.	"	1500KC	1500KC	"	A12, A13	Adjust for maximum output. Repeat Steps 2 thru 6.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	High side thru .01mfd to pin 7 (grid) of FM Converter. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A14, A15, A16, A17, A18	Adjust for maximum output.
8.	"	"	"	DC probe to point (B). Common to point (C).	A19	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	High side thru .01mfd to pin 7 (grid) of FM Converter. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A14, A15, A16, A17, A18	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. Reconnect C4.
8.	"	"	"	Vert. amp. to point (B). Low side to chassis.	A19	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	Across FM antenna terminals with 150Ω in each lead.	91MC (Unmod.)	(FM) 91MC	DC probe to point (A). Common to chassis.	A20	Adjust for maximum deflection.
10.	"	105MC	105MC	"	A21, A22	"

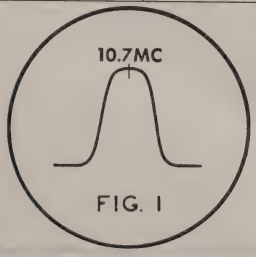


FIG. 1

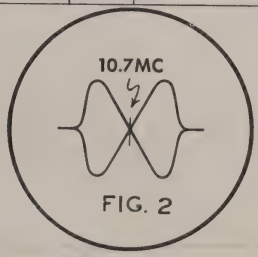
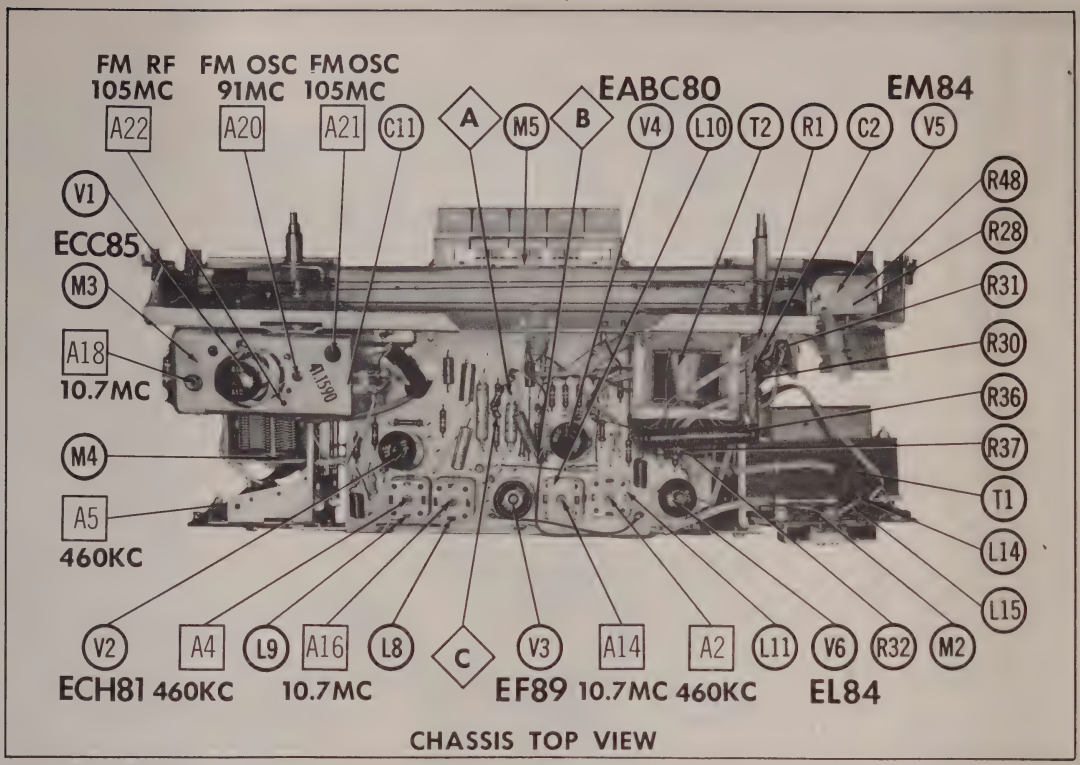
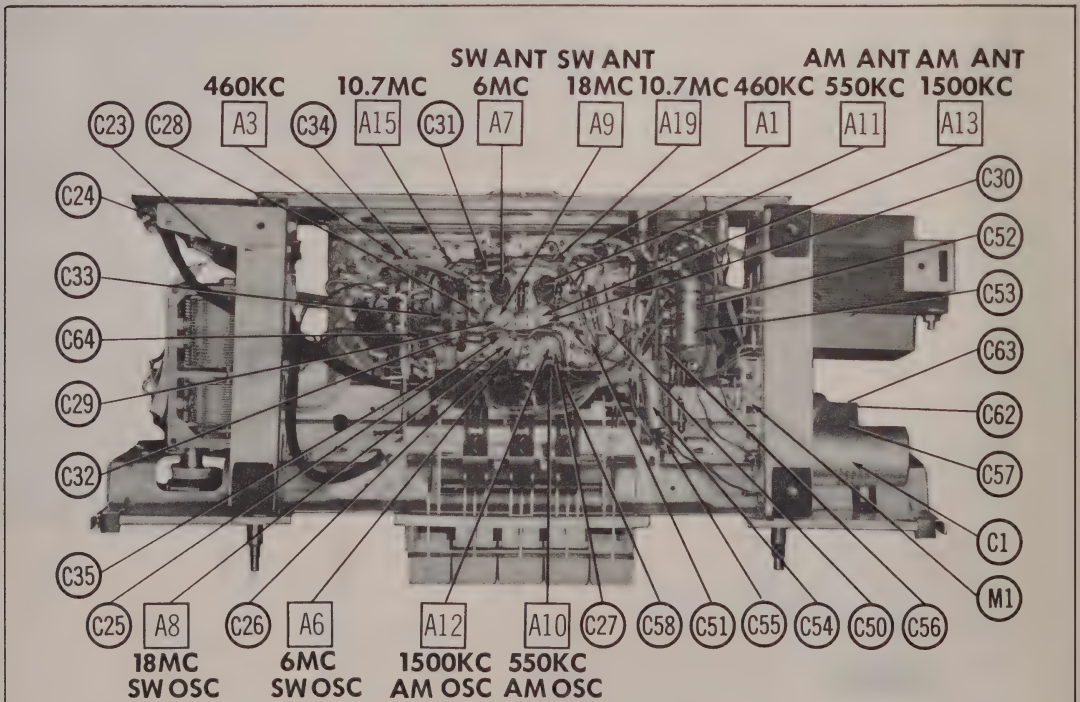


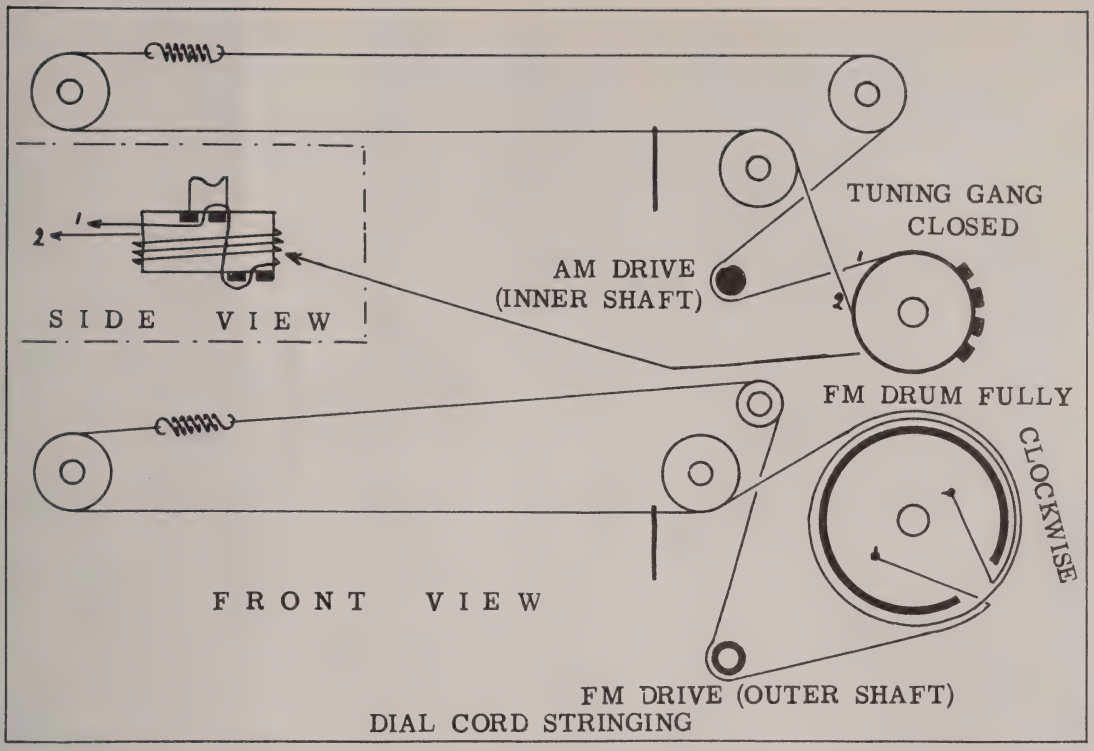
FIG. 2



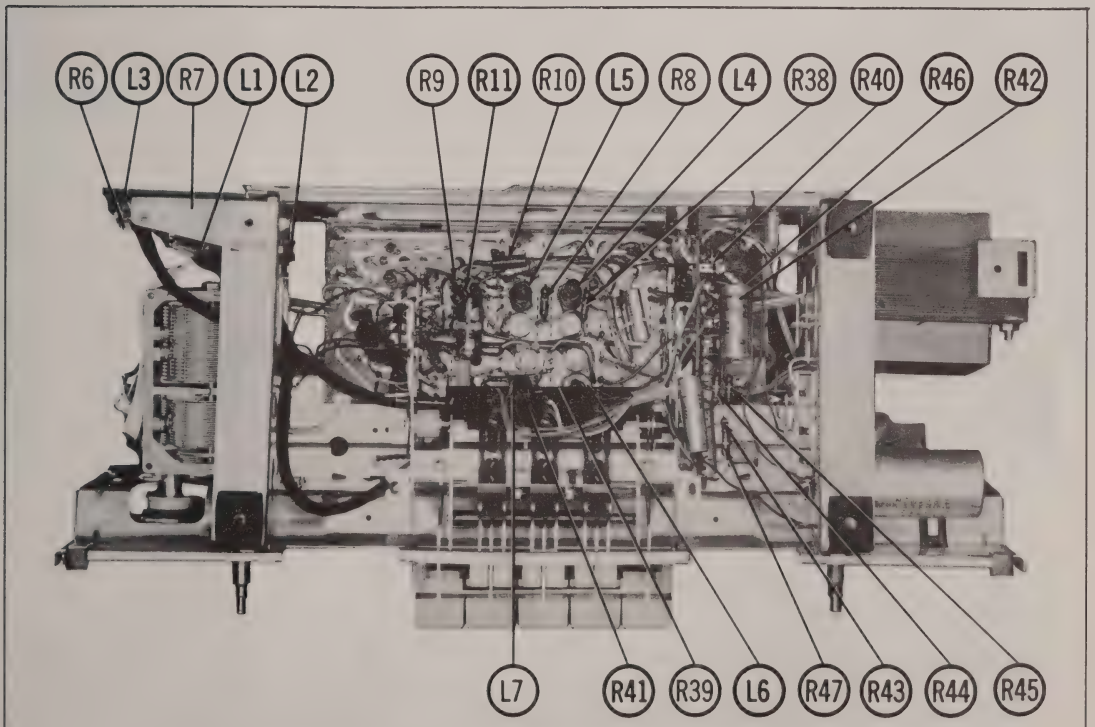
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW



DIAL CORD STRINGING



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.

FM RF SUB CHASSIS

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85	V4	Ratio Detector- AM Det. -AF Amp.	EABC80
V2	1st FM IF Amp. - AM Mixer-AM Osc.	ECH81	V5	Tuning Indicator	EM84
V3	2nd FM IF Amp. -AM IF Amp.	EF89	V6	Output	EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BLAUPUNKT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲50	350	AFH1-41	A0390	XC1-5	FP137	TMS-1630		TVL-1622
B	■50	350	PRSI680	BR5035	QT1-16	TC79	TD-50-450		TVA-1713
C2	1	350	PRSI700	BR145	QT1-1	GEM41	TD-2-450		TVA-1700
C3	1	350	PRSI700	BR145	QT1-1	GEM41	TD-2-450		TVA-1700
C4	2	30	PTT88	NLW2-50	MT1-1	TC302	MLV2-50		TE-1301
C5	50	12	PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12		TE-1133

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	20 N750 5%			DTN-20	C10Q2U		CN7-420	10TCU-Q20
C7	330		DI-330	DD-331	L10T33	CCD-331	B-333	10TS-T33
C8	11 N150 5%					*		10TCP-Q12
C9	20 N150 5%					*		10TCP-Q22
C10	.5-3.5							
C11	25 N750 5%			TCN-25	C10Q25U		CN7-425	10TCU-Q25
C12	.0022		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C13	.5-3.5							
C14	14 N110 5%					*		
C15	7.5 N150 5%					*		
C16	.5-3.5							
C17	11 N150 5%					*		10TCP-Q12
C18	7.5 N150 5%					*		
C19	25 N150 5%					*		10TCP-Q27
C20	.0022		BPD-0022	DD-222	BYA10D22	CCD-222	B-222	5HK-D22
C21	125 N750 5%			TCN-130	C10T13U		CN7-312	10TCP-T12
C22	10 N150 5%					*		10TCP-Q10
C23	50 N150 5%					*		10TCP-Q47
C24	15 N150 5%							10TCP-Q15
C25	20 N150 5%					*		10TCP-Q22
C26	10-40							

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C27	10-40							
C28	25 N750 5%			TCN-25	C10Q25U		CN7-427	10TCP-Q27
C29	10-40							
C30	10-40							
C31	500 5%				5R5T5	CM-19B-501J	MCE245	MS-25
C32	.0082 5%				1DR5D82		MCJ243	5BF-D82
C33	35 N150 5%					*		
C34	10 N750 5%			DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C35	100 10%	Note 1	NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C36	.005		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C37	1.5 N110 5%					*		
C38	.0025		SI 2500	D6-252	BYA10D25	CCD-252	GP225	5HK-D25
C39	.025 500V		P688N-025		DPMS6S25	6DP-2-253	GEM-6125	6PS-S25
C40	.015 350V		P488N-015	DD-153	CUB4S15	4DP-1-153	GEM-4115	4TM-S15
C41	.005		BPD-005	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C42	.0025		SI 2500	D6-252	BYA10D25	CCD-252	GP225	5HK-D25
C43	1.5 N110 5%					*		
C44	1 P100					*		
C45	90 N750 5%			TC N-91	C10Q91U			
C46	150 N750 5%			DTN-150	C10T15U		CN7-315	10TCU-T15
C47	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C48	.005		BPD-005	D6-502	CYA10D5	CCD-502	B-250	5HK-D50
C49	.005		BPD-005	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C50	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C51	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C52	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C53	.25 125V		P288N-25		CUB4P25	2DP-4-254	GEM-2025	2TM-P25
C54	.075 125V		P288N-075		DPMS6S75	4DP-3-753		6PS-S75
C55	.1 125V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C56	.05 150V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C57	.025 250V	Note 1						
C58	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C59	50 N750 5%			TCN-50	C10Q5U		CN7-447	10TCU-Q47
C60	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C61	10 N150 5%					*		10TCP-Q10
C62	.005 350V		P488N-005	D6-502	CUB6D1	6DP-1-502	GEM-625	6TM-D50
C63	.01 350V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C64	.005		BPD-005	D6-502	BYA10D5	CCD-502	B-250	5HK-D50

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Shielded Unit.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BLAUPUNKT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A B	1meg 1.3meg 300K Tap	½						Tone Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	220K				R25	200K			
R3	8000Ω 1W				R26	10meg			
R4	330K				R27	100K			
R5	18K				R28	2.5meg			
R6	1000Ω				R29	500K			
R7	10K				R30	50K			
R8	20Ω				R31	500Ω			
R9	300Ω				R32	1600Ω 2W			
R10	30K 1W				R33	1000Ω			
R11	50K				R34	500K			
R12	1meg				R35	200Ω			
R13	1000Ω				R36	1000Ω 3W	PW3-1000	3G-1000	
R14	20K 1W				R37	100K			
R15	100K				R38	15K			
R16	2meg				R39	16K			
R17	1000Ω				R40	3000Ω			
R18	30K 1W				R41	3000Ω			
R19	200K				R42	16K			
R20	300K				R43	40K			
R21	25K				R44	200Ω			
R22	25K				R45	200Ω			
R23	1meg				R46	50Ω			
R24	100K				R47	200Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		BLAUPUNKT PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant. Matching						
L2	460KC IF Trap						
L3	RF Choke						
L4	AM Ant.						
L5	SW Ant.						
L6	AM Osc.						
L7	SW Osc.						
L8	2nd FM IF						
L9	1st AM IF						
L10	Ratio Detector						
L11	2nd AM IF						
L12	Fil. Choke						
L13	Fil. Choke						
L14	Line Choke						
L15	Line Choke						

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .4A	200V@ .100A AC	6.3V@ 2.4A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω Tap@ 3%	3-4Ω SEC. 2 500Ω Not Used SEC. 3 Not Used SEC. 4 Not Used						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	BLAUPUNKT PART No.	QUAM PART No.	
SP1 SP2 SP3	6"x 8" Electrostatic Electrostatic	PM	3-4Ω	LA812/5Z LSH65 LSH65		

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	BLAUPUNKT PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.060A	B250C75	1N1763 *		* 4 Required. Add 8Ω surge limiter in each HV secondary lead.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BLAUPUNKT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	6/10A 250V S/B			313.600 (3AG 6/10A 250V S/B)	357001	MDL 6/10	4405

MISCELLANEOUS

ITEM No.	PART NAME	BLAUPUNKT PART No.	NOTES
M3 M4 M5	FM Tuner Tuning Cap. Switch Ass'y.		Complete 2 Gang Function Selector (Pushbutton Type) Includes Hi Fi, Solo, Sonor, Off, PU, AM, SW, and FM

WIRING DATA

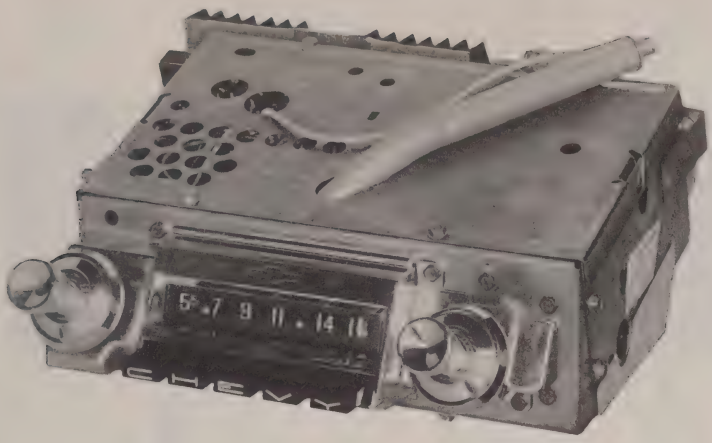
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

CHEVROLET
MODEL 988414

CHEVROLET
MODEL 988414



TRADE NAME	Chevrolet Model 988414 (For 1961 Chevrolets)
MANUFACTURER	Delco Radio Div., General Motors Corp., Kokomo, Indiana
TYPE SET	Battery Operated 4 Tube — 1 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING 2 Amp. @ 12. 6 Volts DC
TUNING RANGE—BROADCAST	540 — 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A5, A9, A10.... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A6, A7, A8.. . ..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru . 1mfd to pin 7 (grid) of Converter. Low side to chassis.	262KC (400~ Mod.)	High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
	Check setting of Oscillator core (A5). Rear of core should be 1 5/8" from mounting end of the coil form.					
2.	High side thru 82mmf to antenna receptacle. Low side to chassis.	1615KC	High end stop.	Across voice coil.	A6, A7, A8	Adjust for maximum output.
3.	"	600KC	600KC Signal.	"	A9, A10	"
4.	"	1615KC	High end stop.	"	A7, A8	"
5.	"	1100KC	1100KC Signal.	"		Adjust pointer adjustment until pointer coincides with 1100 on dial.
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A8 for maximum output.					

PUSHBUTTON ADJUSTMENT

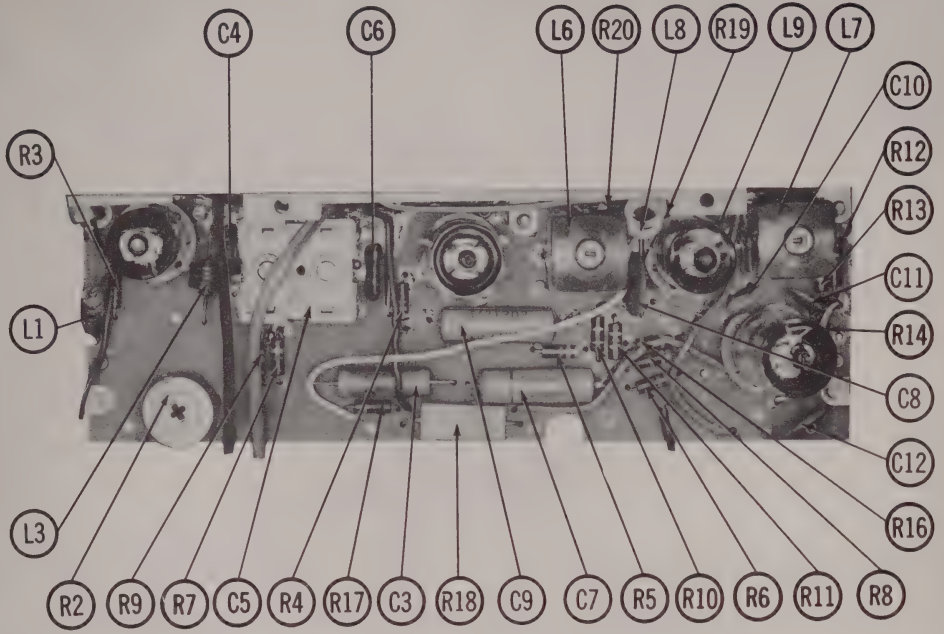
1. Tune manually to desired station.
2. Pull pushbutton out, then press in firmly.
3. Repeat for remaining pushbuttons.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

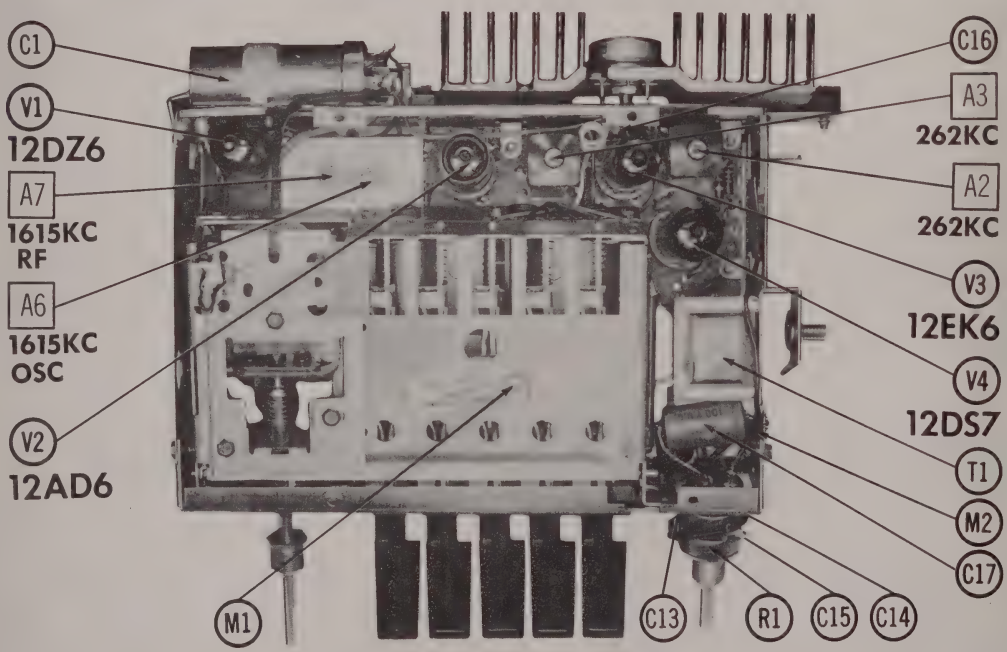
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KD928

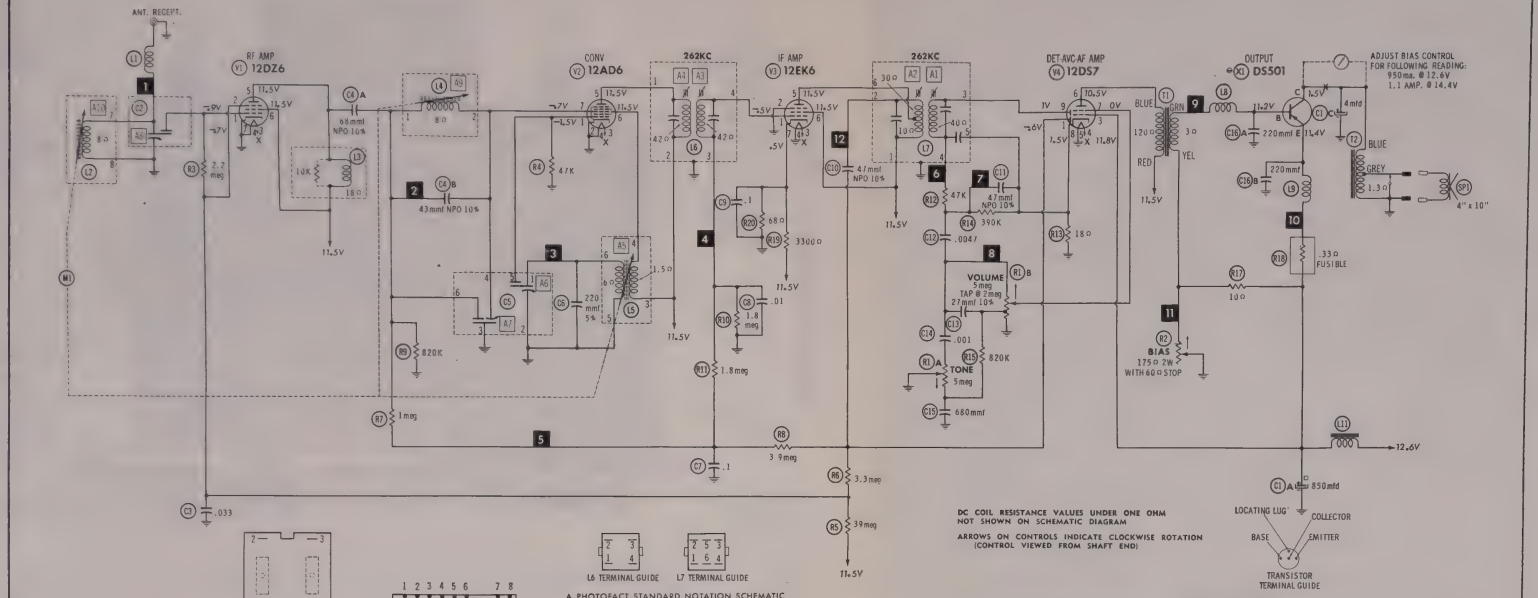
SET 553 FOLDER 4



PRINTED BOARD



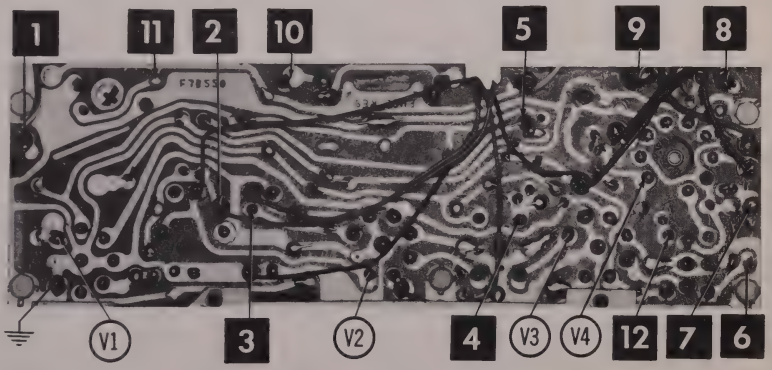
CHASSIS TOP VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DZ6	10meg	7.8meg	FILS	FILS	60Ω	50Ω	0Ω		
V2	12AD6	47K	0Ω	FILS	FILS	80Ω	50Ω	800K		
V3	12EK6	1.3meg	0Ω	FILS	FILS	60Ω	50Ω	68Ω		
V4	12DS7	4.8meg	TP	3.1Ω	FILS	FILS	170Ω	100Ω	18Ω	437K

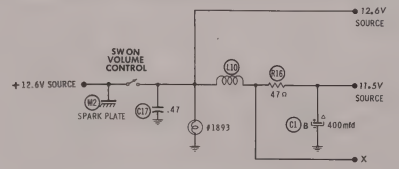
TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL RESISTANCE.



A Howard W. Sams CIRCUITRACE Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

CHEVROLET
MODEL 988414

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •			• SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12DZ6	V3	IF Amplifier	12EK6			
V2	Converter	12AD6	V4	Det. -AVC-AF Amp.	12DS7			

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	DS501	Output	2N176		PNP Note 1

Note 1. When replacing, apply silicone grease between transistor and heat sink. Tighten mounting screws securely. Check bias adjustment.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	850	16	7273729	AFH3-54-30			WP300.7		TVLS-3021 *
B	400	16							
C	4	11.5AC							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2		#7276941						
C3	.033 75V		P288N-033	DD-303	DPMS4S33	1DP-1-333	GEM-4133	4PS-S33
C4A	68 NPO 10%		NPO-DI 68	TCZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
B	43 NPO 10%		NPO-DI 39	TCZ-43	C10Q45C	CCTO-390	CNO-439	10TCC-Q39
C5		#7273693						
C6	220 5%		1469-00022	TCZ-220	22R5T22	CM-19B-221J	CNO-322	MS-322
C7	.1 75V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.1 75V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C10	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C11	47 NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C12	.0047		BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47
C13	27 10%		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-L10
C15	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C16A	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
B	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C17	.47 100V		P288N-47		CUB2P47	1DP-4-474	GEM-2047	2TM-P47

Delco Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	5meg		7276939					Tone
B	5meg 2meg Tap							Volume
C	Switch							Power Off-On
R2	175Ω 60Ω Stop	2(WW)	1221422 ①					

① Temperature Compensated.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	2.2meg				R12	47K			
R4	47K				R13	18Ω			
R5	39meg				R14	390K			
R6	3.3meg				R15	820K			
R7	1meg				R16	47Ω			
R8	3.9meg				R17	10Ω			
R9	820K				R18	.33Ω			
R10	1.8meg				R19	3300Ω			
R11	1.8meg				R20	68Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		DELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	RF Choke (6. 5uh)	7255738	BC-565	4610	RTC-8520	T859	
L2	Ant.	1221138					
L3	RF Choke (l. 8MH)	7269684	BC-514	4664	RTC-8533	T875	
L4	RF	1221138					
L5	Osc.	1221151					
L6	Input IF	1221257	BC-344	13-PH1	RTC-8644	T655	
L7	Output IF	1221253	BC-424				
L8	RF Choke (l. 4uh)	7241708					
L9	RF Choke (l. 4uh)	7241708					
L10	Hash Choke(l. 4uh)	7241708					

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L11	1A	. 7Ω	. 01lHY	7274342		TC-2			

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	6. 8	1	1221590		TA-48			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8Ω Tap@ 3-4Ω	7278020		TA-50			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	4"x 10"	PM	3-4Ω	7277075	410A2	

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M1	Tuner		Pushbutton Type, Series P2
M2	Spark Plate	7271564	

CABINETS & CABINET PARTS

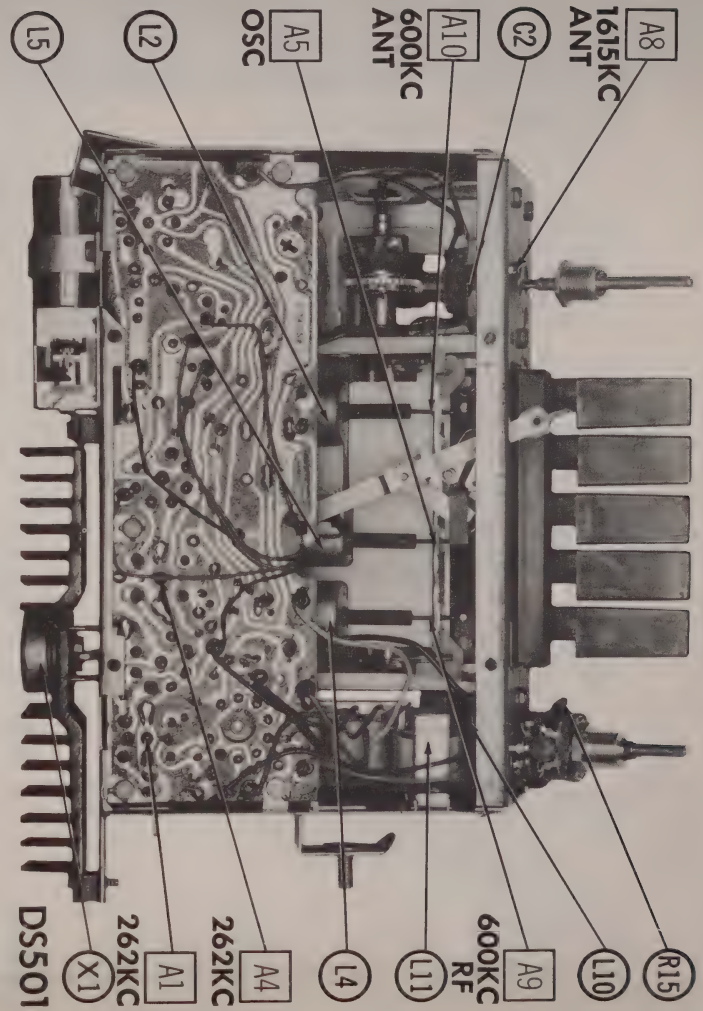
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	1221533	
C Pushbutton	7276732	
H Pushbutton	7276070	
E Pushbutton	7276071	
V Pushbutton	7276072	
Y Pushbutton	7276073	
Knob	7277055	Tuning, Volume
Knob	3785716	Tone
Knob	3785717	Dummy

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No.	8885
Bonding Strap	Use BELDEN No.	8661

CHASSIS—BOTTOM VIEW



PHOTOFACT® Folder

FIRESTONE
MODEL 4-A-216A

FIRESTONE
MODEL 4-A-216A

FIRESTONE
MODEL 4-A-216A

TRADE NAME	Firestone Model 4-A-216A (Code 1-0-238)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio
TYPE SET	AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 31 Watts, .34 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER PART #300073 — SEE V-M 1201 — PHOTOFACT SET 436
FOLDER 18 OR RECORD CHANGER MANUAL RC-12

SET 553 FOLDER 5

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KT768

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7A

ITEM No.	USE	TYPE
V2	Channel 1 Output	50C5 (50EH5) *
V3	Channel 2 Output	50C5 (50EH5) *

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	80	150	583021	PRS3825	BBRT84215	QT3-7	TCT3118	TDLT-7	TVAS-3457 *
B	80	150							
C	20	150							
C2	10	150	①	PRS1410	BBR10-150	QT1-5	TC42	TD-10-150	TVA-1406
C3	100	25	581014	PRS1270	BBR100-25	QT1-23	TC2501	TD-100-25	TVA-1207

① Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C5	.001 600V		P688N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D10
C6	.003	Note 1	1467-003		1W5D3	CM-20B-302M	MC461	1FM-23
C7	.003		1467-003		1W5D3	CM-20B-302M	MC461	1FM-23
C8	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	.05 400V	(.01) †	P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C10	.005	(.01) †	BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C11	.001 600V		P688N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D10
C12	.003	Note 1	1467-003		1W5D3	CM-20B-302M	MC461	1FM-23
C13	.003		1467-003		1W5D3	CM-20B-302M	MC461	1FM-23
C14	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	.05 400V	(.01) †	P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C16	.005	(.01) †	BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C17	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C18	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

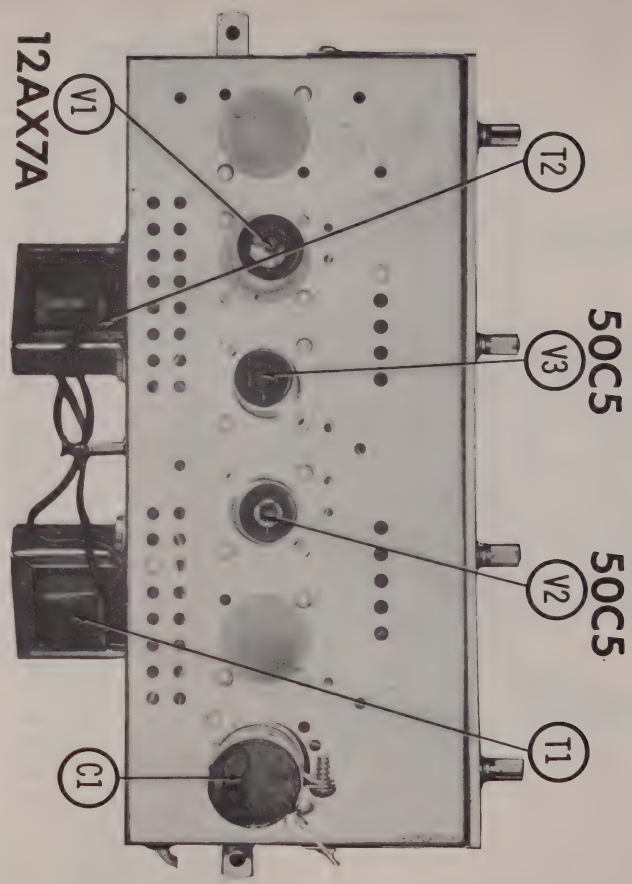
Note 1. Not used in some versions.
† Alternate Value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3, 25meg*	½	368009 †					Volume, Channel 1
R2	3, 25meg*	½	368009 †					Volume, Channel 2
R3A	5meg	½	368036	B-88	AD47-5meg-S		FA56A	Bass, Channel 1
B	5meg	½		SR-88	Not Req.		RU56A	Bass, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	250K	½	368035	B-50	AD47-250K-S		FA254L	Treble, Channel 1
B	250K	½		SR-50	Not Req.		RU254L	Treble, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	

† Part #368075 (one tap) used in some versions.
* Taps @1meg & 2meg.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	100K			Note 1
R6	220K			
R7	100K			
R8	100K			
R9	6.8meg			
R10	100K			
R11	470K			
R12	100K			
R13	220K			
R14	100K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R15	100K			Note 1
R16	6.8meg			
R17	100K			
R18	470K			
R19	82Ω 1W			
R20	47K			Note 1
R21	2200Ω 1W			
R22	125Ω 4W	PW5-125	5W-SQ-125	
R23	47Ω 2W			
R24	22Ω 2W			

Note 1. Not used in some versions.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	FIRESTONE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1600Ω	3-4Ω	430595	A-2928	A-3876	24S50	S-2X	
T2	1600Ω	3-4Ω	430595	A-2928	A-3876	24S50	S-2X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω	405005	5A15	
SP2	6"	PM	3-4Ω	406008	6A15	
SP3	5"	PM	3-4Ω	405005	5A15	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	FIRESTONE PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.090A	380020	1N1763	40H	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

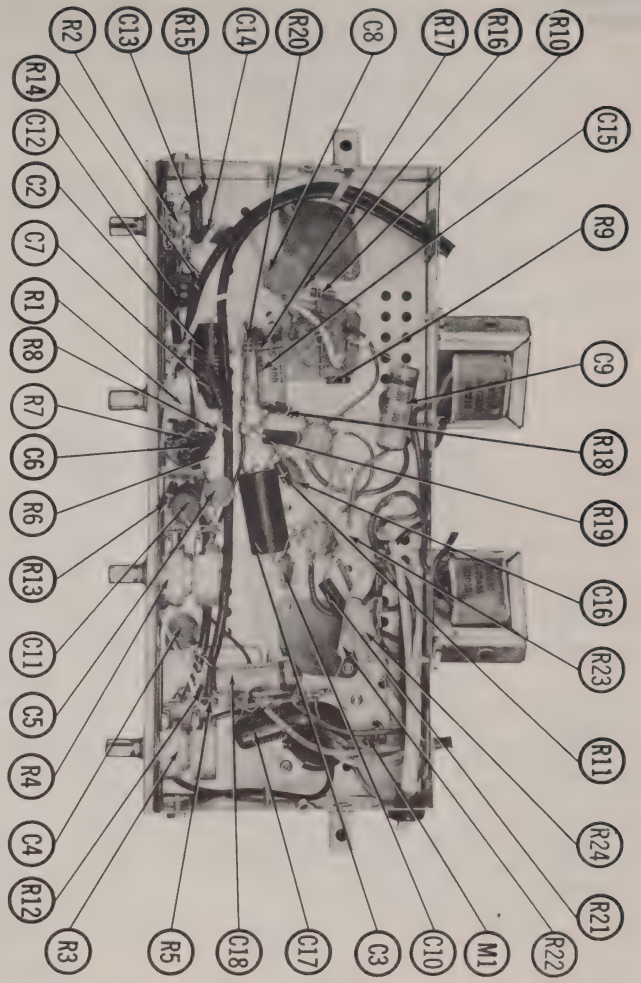
ITEM No.	REPLACEMENT DATA								NOTES
	FIRESTONE PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	324529	329430 * (LP)	80TS	Not Req.	26S	Not Req.			
		329431 * (78RPM)							

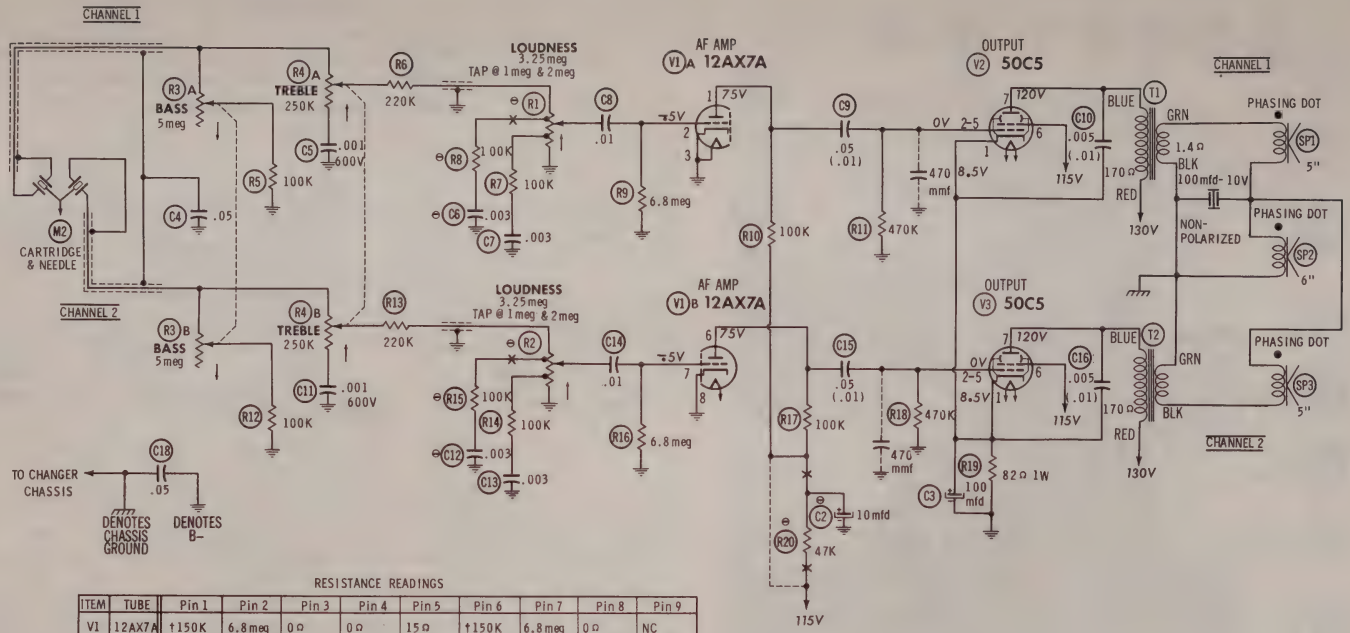
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	272366	Charcoal and White
Cabinet	241950	
Handle	761283	

CHASSIS—BOTTOM VIEW

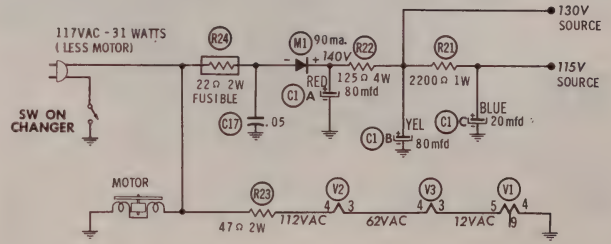




RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†150K	6.8meg	0Ω	0Ω	15Ω	†150K	6.8meg	0Ω	NC
V2	50C5	82Ω	470K	75Ω	160Ω	470K	†2400Ω	†295Ω		
V3	50L5	82Ω	470K	15Ω	75Ω	NC	†2400Ω	†295Ω		

† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

FIRESTONE MODEL 4-A-216A

PHOTOFACT® Folder

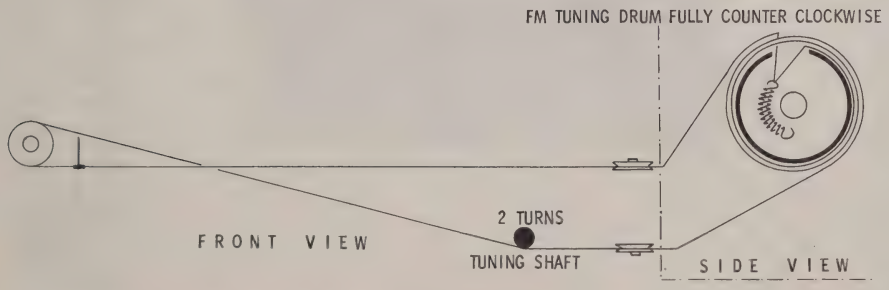
FISHER
MODEL FM-50

FISHER
MODEL FM-50

FISHER
MODEL FM-50

TRADE NAME	Fisher Model FM-50 (Serial #10001-19999 Inclusive)
MANUFACTURER	Fisher Radio Corp., 21-21 44th Drive, Long Island City 1, N. Y.
TYPE SET	AC Operated 8 Tube FM Tuner
POWER SUPPLY	105 — 120 Volts AC, 50-60 Cycles
TUNING RANGE—FREQ. MOD.	88 — 108MC RATING 36 Watts, .34 Amp. @ 117 Volts AC

DIAL CORD STRINGING

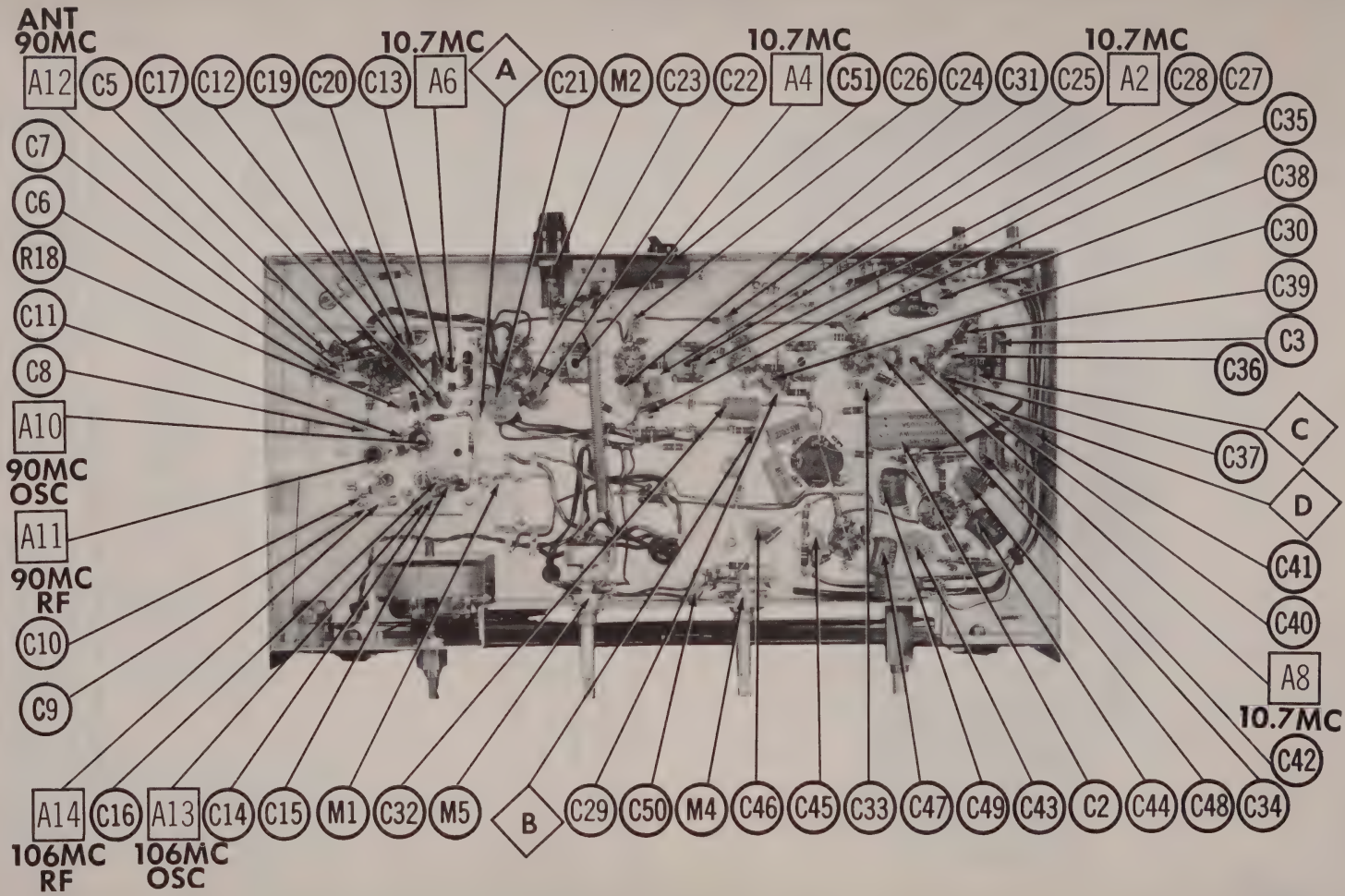


HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

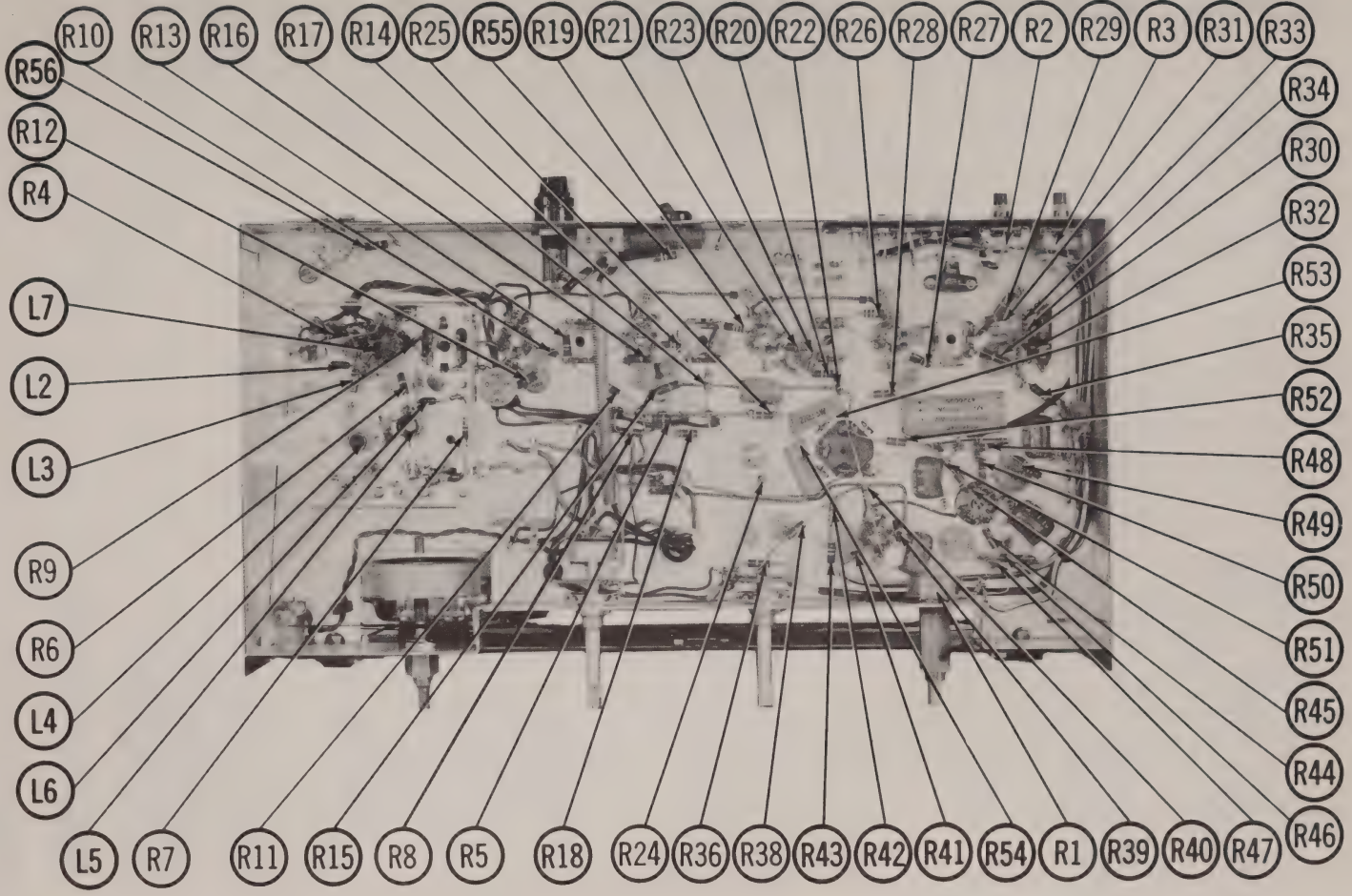
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KJ712

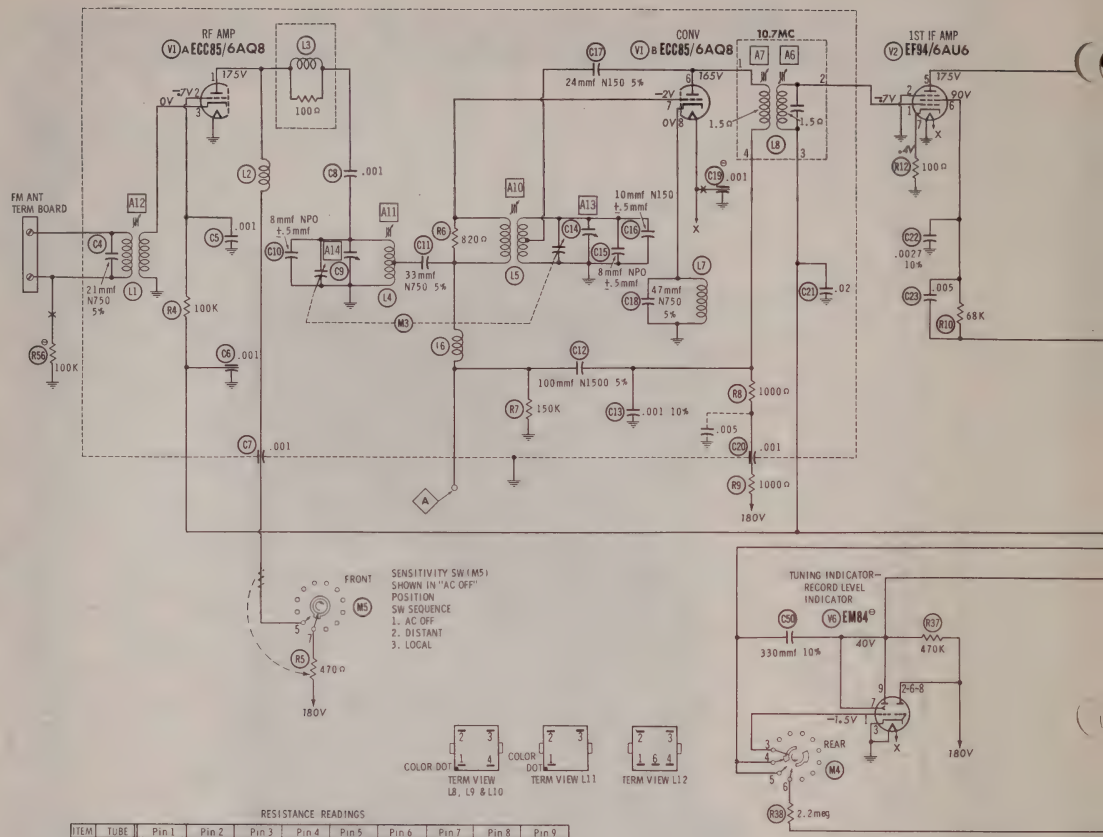
SET 553 FOLDER 6



CHASSIS BOTTOM VIEW-ALIGN., CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85 6AQ8	†1100Ω	1meg	.1Ω	FIL	FIL	†2600Ω	150K	.1Ω	0Ω
V2	EF94 6AU6	900K	0Ω	FIL	FIL	†1600Ω	†69K	100Ω		
V3	EF94 6AU6	.1Ω	0Ω	FIL	FIL	†1600Ω	†48K	150Ω		
V4	EF94 6AU6	47K	0Ω	FIL	FIL	†1600Ω	†83K	0Ω		
V5	EF94 6AU6	33K	0Ω	FIL	FIL	†1600Ω	†83K	0Ω		
V6	EM84	1.8meg	NC	0Ω	FIL	FIL	†600Ω	†470K	NC	†470K
V7	ECC83 12AX7	†100K	22meg	0Ω	FIL	FIL	†100K	22meg	0Ω	FIL
V8	6AV6	22meg	0Ω	FIL	FIL	1.8meg	1.8meg	†100K		

ALL MEASUREMENTS MADE IN "DISTANT FM" POSITION.
† MEASURED FROM OUTPUT OF M1.

NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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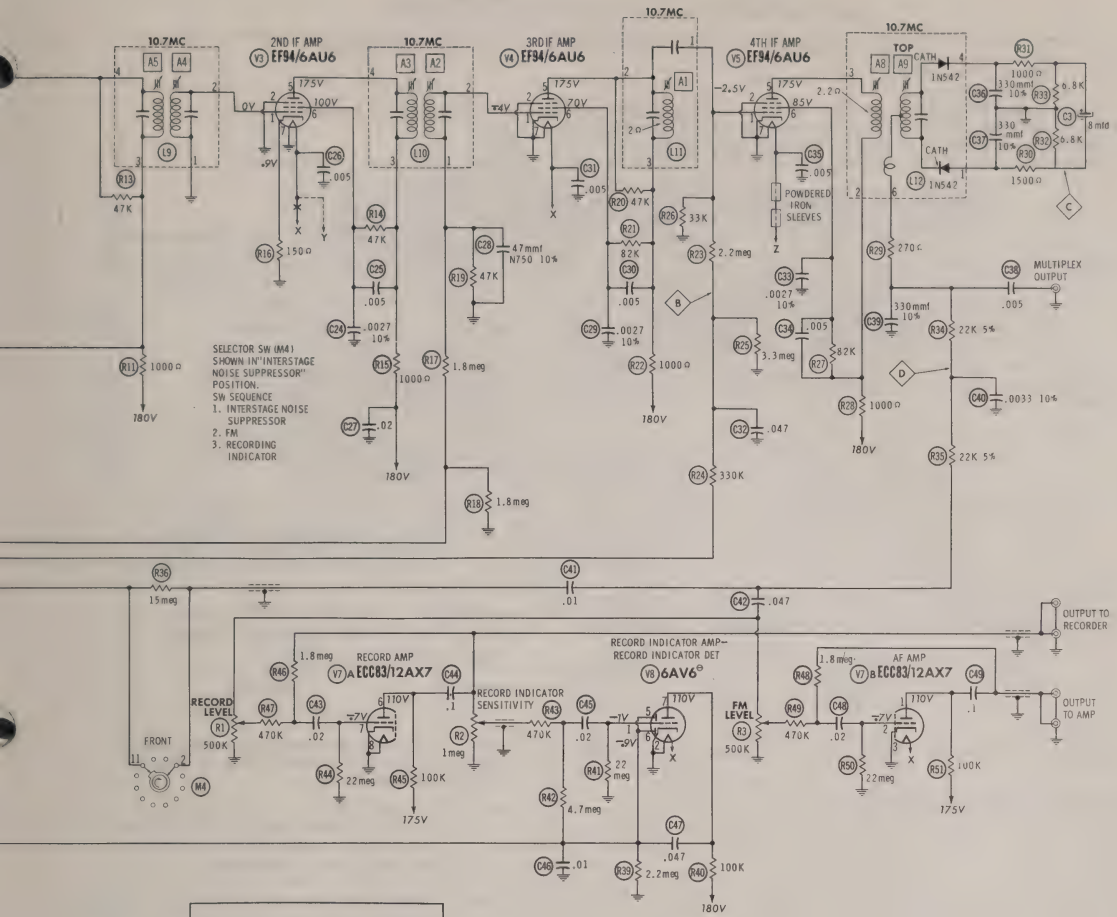
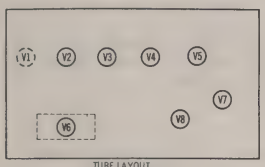
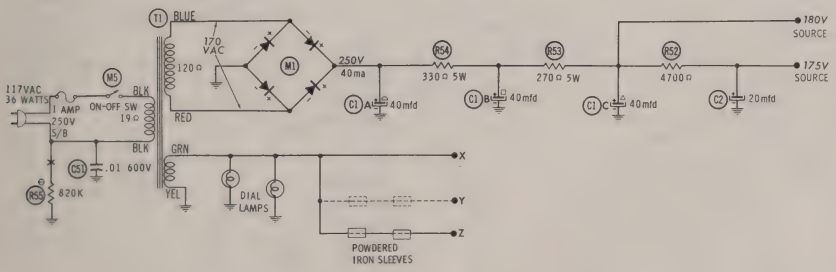






FISHER
MODEL FM-50

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Sensitivity control to Distant.
All Level controls to max.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Allow a 20 minute warm-up period for the receiver and test equipment.
Use only enough generator output to provide a usable indication.
Suggested Alignment Tools: A1, A8, A9, A10, A12..... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A2 thru A7, A11..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A13, A14..... GENERAL CEMENT #5003, 8271, 8275, 8276, 8609, 8721, 8722, 9150, 9298
WALSCO #2516, 2518, 2519

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .01mfd to point Ⓐ. Low side to chassis.	10.7MC (Unmod.)	Point of non-interference.	DC probe to point Ⓑ. Common to chassis.	A1, A2, A3, A4, A5, A6, A7	Adjust for maximum deflection.
2.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A8	"
3.	"	"	"	DC probe to point Ⓓ. Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .01mfd to point Ⓐ. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point Ⓑ. Low side to chassis.	A1, A2, A3, A4, A5, A6, A7	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
2.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A8	Disconnect stabilizing cap. (C3). Adjust for maximum amplitude and symmetry similar to Fig. 1. Reconnect C3.
3.	"	"	"	Vert. amp. to point Ⓓ. Low side to chassis.	A9	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of cross-over lines.

RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	Across antenna terminals with 120Ω in each lead.	90MC (Unmod.)	90MC	DC probe to point Ⓑ. Common to chassis.	A10, A11, A12	Adjust for maximum deflection.
5.	"	106MC	106MC	"	A13, A14	"

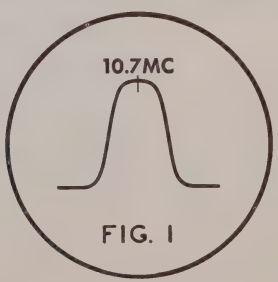


FIG. 1

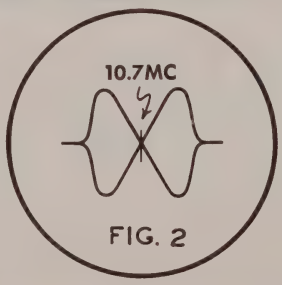


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	RF Amp.-Conv.	ECC85/6AQ8
V2	1st IF Amplifier	EF94/6AU6
V3	2nd IF Amplifier	EF94/6AU6
V4	3rd IF Amplifier	EF94/6AU6
V5	4th IF Amplifier	EF94/6AU6
V6	Tuning Indicator-Record Level Indicator	EM84 (6FG6) *
V7	AF Amp.-Record Amp.	ECC83/12AX7
V8	Record Indicator Amp.-Record Indicator Det.	6AV6 (EBC91) *

* Alternate

ELECTROLYTIC CAPACITORS

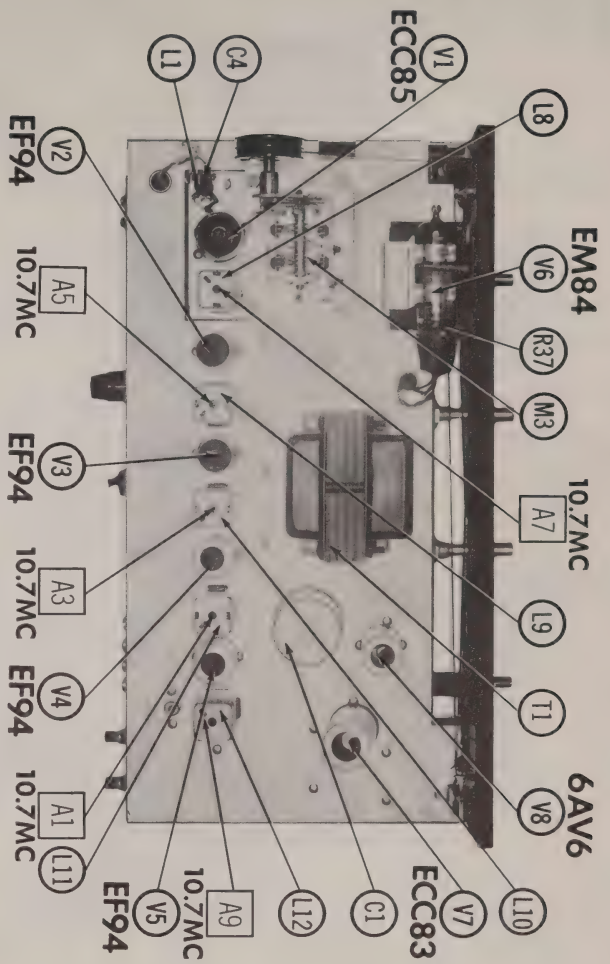
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲40	300	C670-125	AFH4-02	B0260	XC2-25	FP327, 89	TMD-2315	TVLS-3580.5*
B	■40	250			BR4025	QT1-14		TD-40-250	
C	▲40	250							
C2	20	250	C746-145		BR2025	QT1-9	TC55	TD-20-250	TVA-1508
C3	8	50	C629-138	PRS1405	BBR8-150	QT1-4	TC41	TD-8-150	TVA-1405

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	21 N750 5%			DTN-22	C10Q22U	CCTN-220	CN7-422	10TCU-Q22
C5	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C6	.001		EF-001	MFT-1000		CCF-102	CT280A	
C7	.001		EF-001	MFT-1000		CCF-102	CT280A	
C8	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C9		#C662-123						
C10	8 NPO ± .5mmf		NPO-SI 8.2		C10V8C			10TCC-V82
C11	33 N750 5%			DTN-33	C10Q33U		CN7-433	10TCU-Q33
C12	100 N1500 5%	#C50070-19		TCL-100		*		
C13	.001 10%		DI-1000	DD-102	5R5D1	CCD-102	GP210	10TS-D10
C14		#C662-123						
C15	8 NPO ± .5mmf		NPO-SI 8.2		C10V8C			10TCC-V82
C16	10 N150 ± .5mmf	#CC20PJ100D5				*		10TCP-Q10
C17	24 N150 5%	#C50070-8				*		
C18	47 N750 5%			DTN-47	C10Q47U		CN7-447	10TCU-Q47
C19	.001	Note 1	EF-001	MFT-1000		CCF-102	CT280A	
C20	.001		EF-001	MFT-1000		CCF-102	CT280A	
C21	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C22	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C23	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C24	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C25	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C26	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	.02		BPD-02	DD-203	BYB3S2	CCD-203	B-120	5HK-S20
C28	47 N750 10%		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C29	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C30	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C31	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C32	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C33	.0027 10%		DI-2700		DPMS6D27	CCD-272		10TS-D27
C34	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C35	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C36	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C37	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C38	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C39	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C40	.0033 10%		DI-3300		DPMS6D33	CCD-332	JL-233	10TS-D33
C41	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C43	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C44	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C45	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C46	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C48	.02		BPL-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C49	.1 250V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C50	330 10%		DI-330	DD-331	L10T33	CCD-331	GP333	10TS-T33
C51	.01 600V		P668N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.
Fisher Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FISHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	R50160-58	B-60	A47-500K-Z	Q13-133	U48	Record Level
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	1meg	½	R50103-9	BX-69	A47-1meg-S	Q11-137	U54	Record Indicator Sensitivity
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R3A	500K	½	R50103-6	BX-59	A47-500K-S	Q11-133	U50	FM Level
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	100K				R31	1000Ω			
R5	470Ω				R32	6800Ω			
R6	820Ω				R33	6800Ω			
R7	150K				R34	22K 5%			
R8	1000Ω				R35	22K 5%			
R9	1000Ω				R36	15meg			
R10	68K				R37	470K			
R11	1000Ω				R38	2.2meg			
R12	100Ω				R39	2.2meg			
R13	47K				R40	100K			
R14	47K				R41	22meg			
R15	1000Ω				R42	4.7meg			
R16	150Ω				R43	470K			
R17	1.8meg				R44	22meg			
R18	1.8meg				R45	100K			
R19	47K				R46	1.8meg			
R20	47K				R47	470K			
R21	82K				R48	1.8meg			
R22	1000Ω				R49	470K			
R23	2.2meg				R50	22meg			
R24	330K				R51	100K			
R25	3.3meg				R52	4700Ω			
R26	33K				R53	270Ω 5W	PW5-270	5W-SQ-270	
R27	82K				R54	330Ω 5W	PW5-270	5W-SQ-270	
R28	1000Ω				R55	820K			Note 1
R29	270Ω				R56	100K			Note 1
R30	1500Ω								

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FISHER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Ant.	L818-113					
L2	RF Choke(1.5uh)	L50066-4	BC-562	4604	RTC-8516	T856	
L3	RF Choke	L629-180 ①					① Wound on 100Ω
L4	RF	L818-114					
L5	Osc.	AS818-118					
L6	RF Choke(.68uh)	L50066-1	BC-560	4590	RTC-8514	T803	
L7	RF Choke(.2uh)	L50066-21		4584	RTC-8512	T957	
L8	1st IF	ZZ662-117	FM-256	1463-PC	RTC-9046	T654	
L9	2nd IF	ZZ629-142	FM-254	1463	RTC-8599	T633	

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		FISHER PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L10	3rd IF	ZZ50210-2	FM-254	1463	RTC-8599	T633	* Connect 2 crystals externally.
L11	Limiter	L670-145					
L12	Ratio Detector	ZZ592-170	FM-255 *	1465 *	RTC-8600 *	T635 *	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	FISHER PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V@ .34A	170V@ .090A AC	6.3V@ 2.8A	T794-115					

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	FISHER PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.040A	SR50253-2 *	1N1763 ♦		* Selenium, Bridge Type ♦ 4 Required. Add 6.8Ω surge limiter in series with each lead of HV secondary.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FISHER PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1A 250V S/B	F692-132		313001 (3AG 1A 250V)	342001	MDL 1	HKP

MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M3	Tuning Cap.	C818-116	FM, 2 Gang
M4	Switch	S794-118	Selector, Rotary Type
M5	Switch	S794-119	Sensitivity & Power

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	A50242-6	
Knob	E50133-1	Tuning
Knob	E50133-2	Lever, Selector, Sensitivity
Panel	A5794-108	Front

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder

GRUNDIG MAJESTIC MODEL SO191U

GRUNDIG MAJESTIC
MODEL SO191U

GRUNDIG MAJESTIC
MODEL SO191U

TRADE NAME	Grundig Majestic Model SO191U		
IMPORTER	Majestic International Sales, 743 N. La Salle Street, Chicago 10, Illinois		
TYPE SET	AC Operated 13 Tube FM-BC-SW Receiver With Stereo Amplifier With 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120/220 Volts AC, 60 Cycles	RATING	115 Watts, 1.1 Amp. @ 117 Volts AC
TUNING RANGES	BROADCAST 510-1620KC FREQ. MOD. 88 — 108MC	SHORT WAVE I SHORT WAVE II	3.2 — 8.5MC 8.3 — 18.5MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR MIRACORD 90 — PHOTOFACT SET 532 FOLDER 8

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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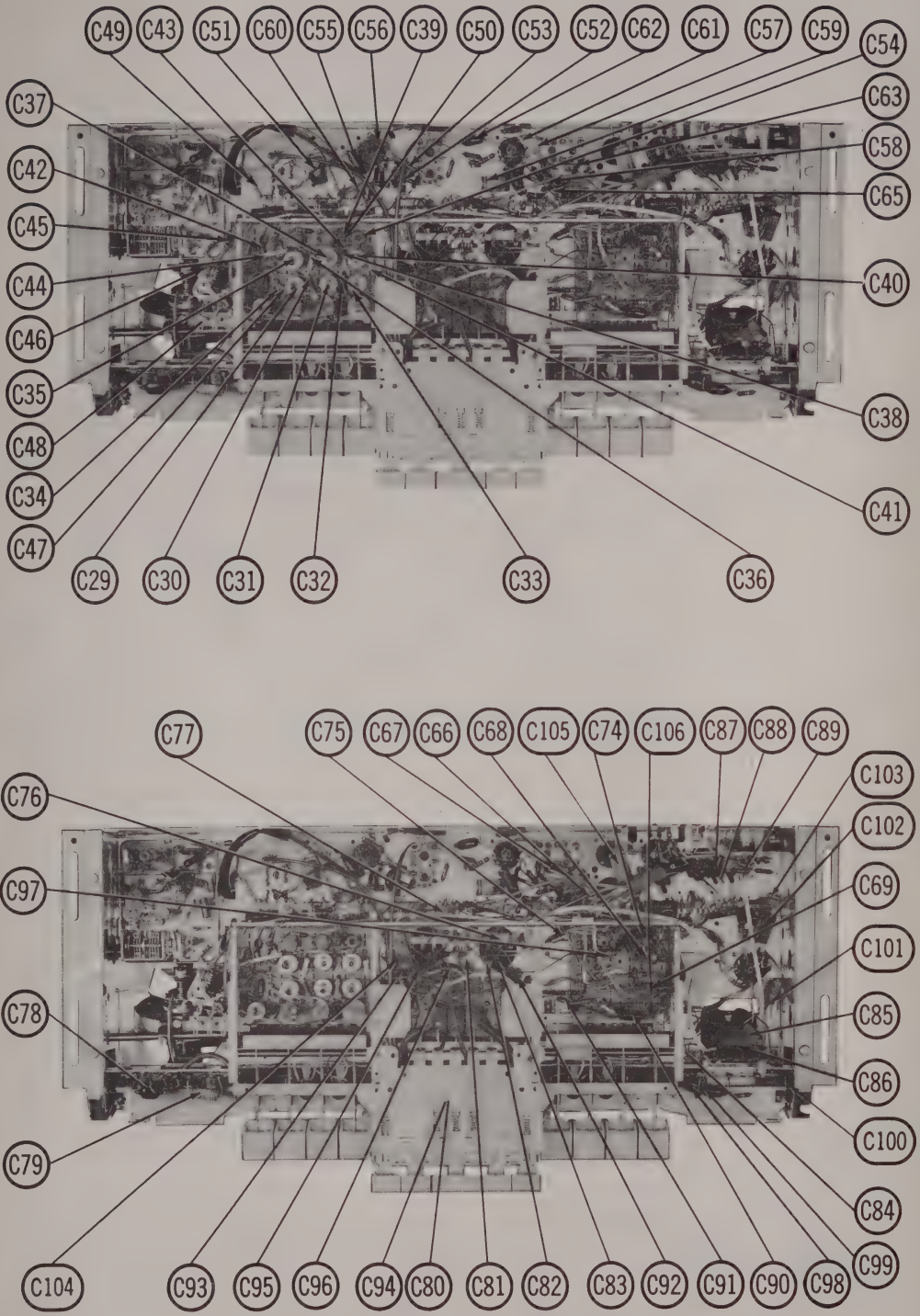
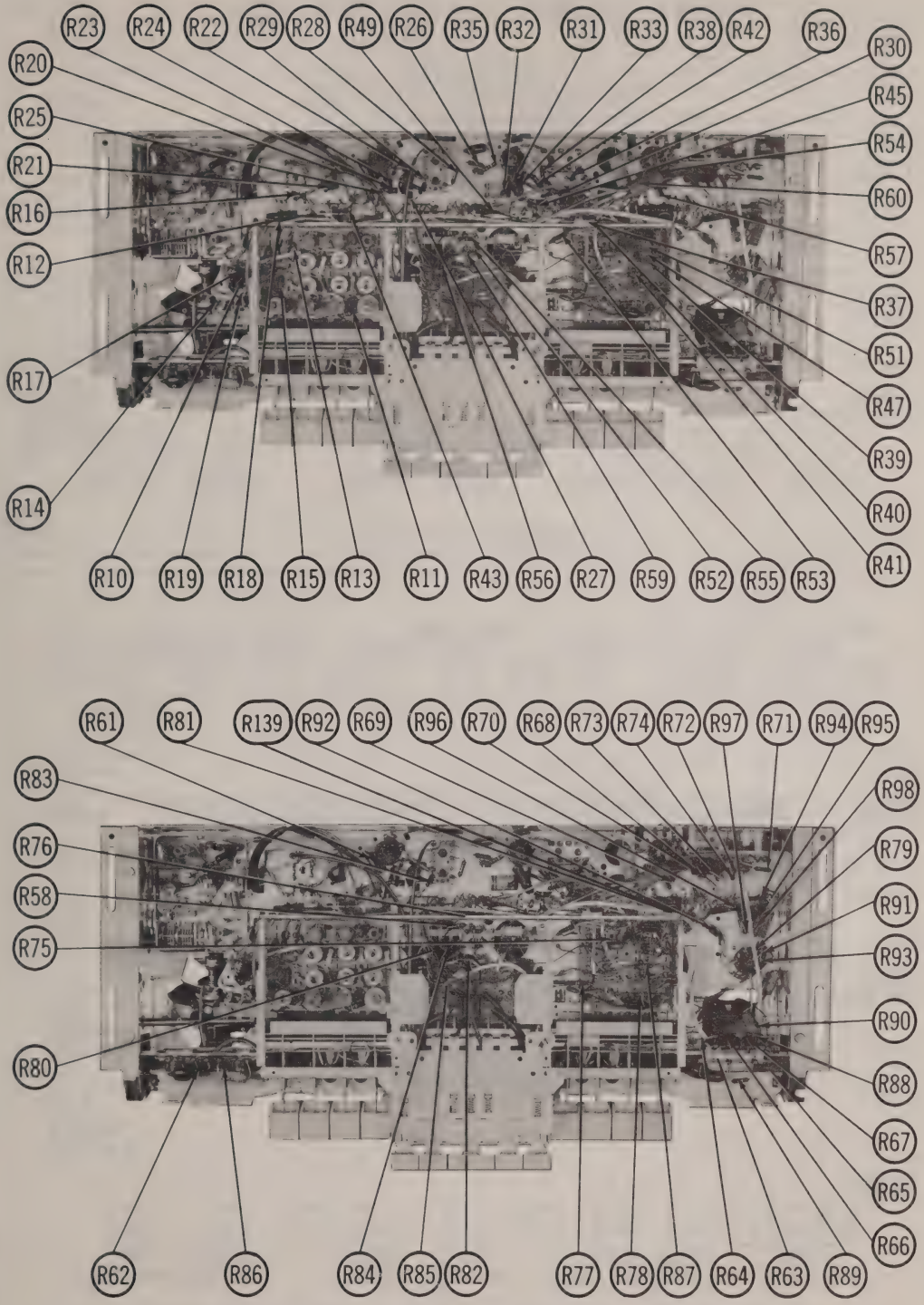
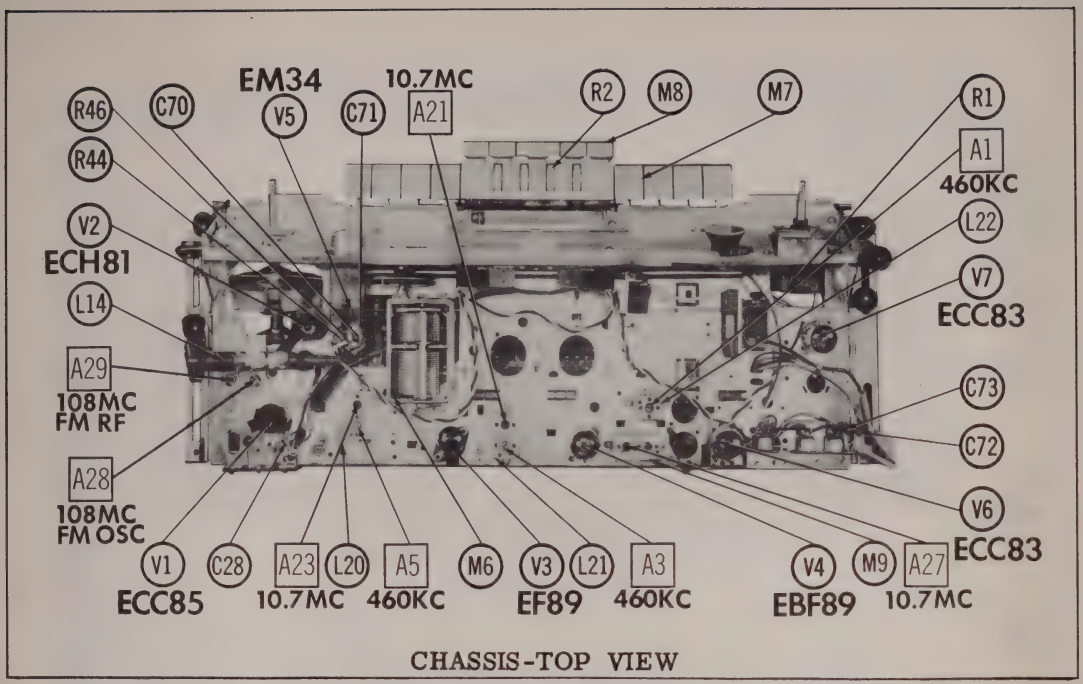
SET 553 FOLDER 7



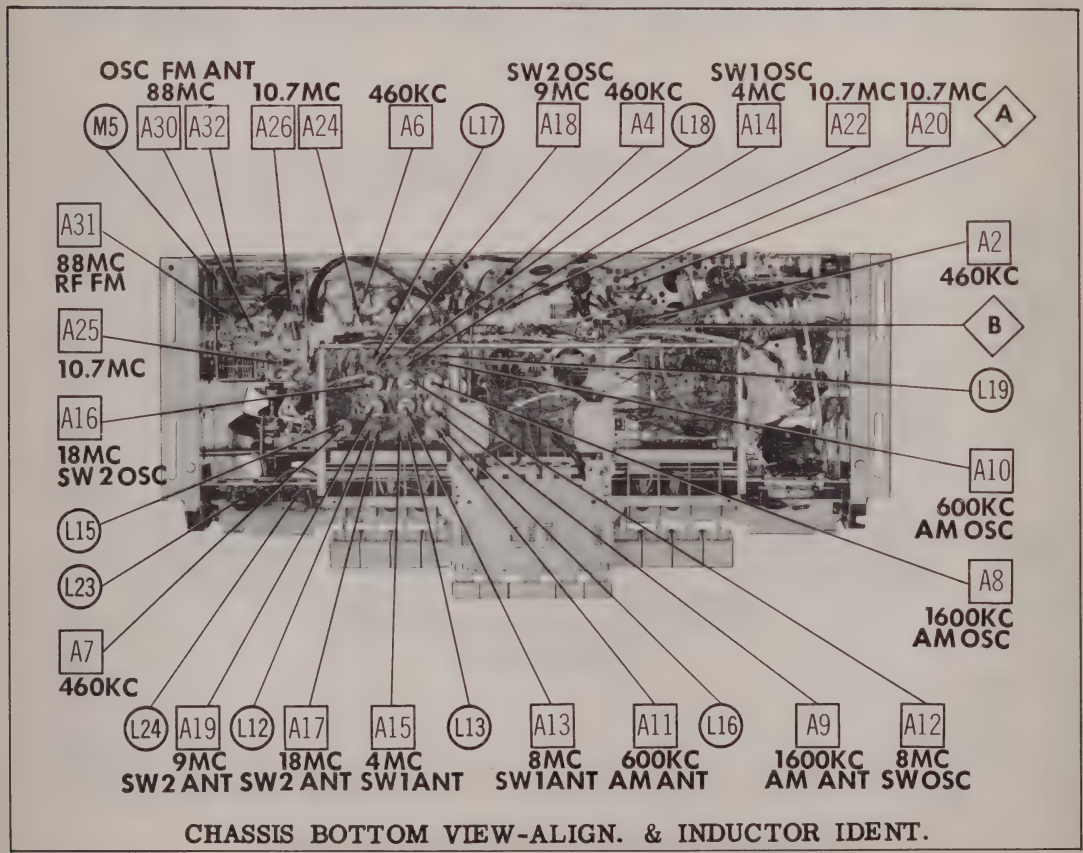
CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-ALIGN. & INDUCTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Suggested Alignment Tools:

A1 thru A7, A10, A11, A14, A15, A18 thru A24, A26... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

A27, A28..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

A25, A29, A30, A31..... GENERAL CEMENT #9440

AM ALIGNMENT

Set right hand treble wheel at mid-position.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	460KC 400% 30% AM)	(BC) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2.	High side thru 470Ω to AM antenna terminal. Low side to chassis.	460KC	600KC	"	A7	Adjust for MINIMUM output.
3.	"	1600KC	1600KC	"	A8, A9	Adjust for maximum output.
4.	"	600KC	600KC	"	A10, A11	"
5.	"	8MC	(SWI) 8MC	"	A12, A13	"
6.	"	4MC	4MC	"	A14, A15	"
7.	"	18MC	(SWII) 18MC	"	A16, A17	"
8.	"	9MC	9MC	"	A18, A19	Adjust for maximum output. Repeat Steps 3 thru 8.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point Ⓐ. Common to chassis.	A20, A21, A22, A23, A24, A25, A26	Adjust for maximum deflection.
10.	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A27	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM RF ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	Across FM antenna terminals with 150Ω in each lead.	108MC (Unmod.)	(FM) 108MC	DC probe to point Ⓐ. Common to chassis.	A28, A29	Adjust for maximum deflection.
12.	"	88MC	88MC	"	A30, A31, A32	"

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85
V2	1st FM IF Amp. -AM Mixer-AM Osc.	ECH81
V3	2nd FM-1st AM IF Amp.	EF89
V4	3rd FM-2nd AM IF Amp. -AM Det. -AVC	EBF89
V5	Tuning Indicator	EM34
V6	Left Channel AF Amp.	ECC83
V7	Right Channel AF Amp.	ECC83
V8	Left Channel AF Amp. -Phase Inverter	ECC83
V9	Left Channel Output	EL84
V10	Left Channel Output	EL84
V11	Right Channel AF Amp. -Phase Inverter	ECC83
V12	Right Channel Output	EL84
V13	Right Channel Output	EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Grundig Majestic PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	100	350		AFH2-41-50	B0332	XC2-39	FP227. 7	TMD-2435	TVL-2641
B	100	350							
C2A	100	350		AFH2-41-50	B0332	XC2-39	FP227. 7	TMD-2435	TVL-2641
B	100	350							
C3	50	30		PTT98	NLW50-50	QT1-15	TC39	TD-50-50	TVA-1308
C4	50	12		PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12	TE-1133
C5	25	12		PTT56	NLW25-15	MT1-11	TC26	MLV25-12	TE-1131
C6	50	12		PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12	TE-1133
C7	50	12		PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12	TE-1133
C8	25	12		PTT56	NLW25-15	MT1-11	TC26	MLV25-12	TE-1131
C9	50	12		PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12	TE-1133
C10	50	12		PTT59	NLW50-15	MT1-16	TT15X50	MLV50-12	TE-1133
C11	30	35		PRSI460	BR3015	QT1-13	TC47	TD-30-150	TVA-1412
C12	30	35		PRSI460	BR3015	QT1-13	TC47	TD-30-150	TVA-1412

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C13	15 N075 5%					*		
C14	36 N075 5%					*		
C15	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C16	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C17	1.3-9.3							
C18	68 N075 5%					*		
C19	20 N110 5%					*		
C20	.5-4							
C21	15 N075 5%					*		
C22	47 N470 5%					*		
C23	15 N075 5%					*		
C24	91 N075 5%					*		
C25	12 N075 5%					*		
C26	.0047							
C27	.0047							
C28	820		SI 820	D6-821	BYA10T82	CCD-821	B-382	10TS-T82
C29	3-30							
C30	100 N470 5%					*		
C31	3-30							
C32	47 N470 5%					*		
C33	3-30							
C34	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C35	3-30							
C36	39 N330					*		
C37	3-30							
C38	22 N330							
C39	.0047 5%				1R5D47	CM-19B-472J	MCJ464	MS-247
C40	3-30							
C41	10 N330					*		
C42	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C43	475 2.5%					CM-15E-471G		
C44	150 N075 5%					*		

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C45	.022 500V		P688N-022	DD-203	CUB4S22	6DP-2-223	GEM-6122	6TM-S22
C46	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C47	270		SI 270	D6-271	L10T27	CCD-271	B-327	10TS-T27
C48	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C49	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C50	220 10%		NPO-SI 220	D6-221	L10T22	CCD-221	GP322	10TS-T22
C51	.047 250V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C52	.0047 500V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C53	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C54	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C55	.022 250V		P488N-002	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C56	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C57	6 N075 5%					*		
C58	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C59	.047 500V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C60	.033 250V		P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33
C61	5 N075 5%					*		
C62	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-222	GEM-4122	4TM-S22
C63	180 N075 5%					*		
C64	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C65	.001		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C66	820 10%			DD-821	5R5T82	CCD-821	GP382	10TS-T82
C67	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C68	.0012		SI 1200	D6-122	L10D12	CCD-122	B-212	10TS-D12
C69	.0018		SI 1800	D6-182	L10D18	CCD-182	B-218	10TS-D18
C70	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C71	330 10%			D6-331	L10T33	CCD-331	GP333	10TS-T33
C72	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C73	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C74	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C75	680 10%			D6-681	5R5T68	CCD-681	GP368	10TS-T68
C76	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C77	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C78	.0033 500V		P688N-0033	D6-332	CUB6D33	6DP-1-332	GEM-6233	6TM-D33
C79	.015 500V		P688N-015	DD-153	CUB6S15	6DP-2-153	GEM-615	6TM-S15
C80	.001 10%			DD-102	5R5D1	CCD-102	GP210	10TS-D10
C81	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C82	820 10%			DD-821	5R5T82	CCD-821	GP382	10TS-T82
C83	150 10%		NPO-SI 150	D6-151	L10T15	CCD-151	GP315	10TS-T15
C84	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C85	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C86	.015 250V		P488N-015	DD-153	CUB4S15	4DP-1-153	GEM-4115	4TM-S15
C87	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C88	.047 500V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C89	.001 10%			DD-102	5R5D1	CCD-102	GP210	10TS-D10
C90	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C91	680 10%			D6-681	5R5T68	CCD-681	GP368	10TS-T68
C92	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C93	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C94	.001 10%			DD-102	5R5D1	CCD-102	GP210	10TS-D10
C95	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C96	820 10%			DD-821	5R5T82	CCD-821	GP382	10TS-T82
C97	150 10%		NPO-SI 150	D6-151	L10T15	CCD-151	GP315	10TS-T15
C98	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C99	.0022 500V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C100	.015 250V		P488N-015	DD-153	CUB4S15	4DP-1-153	GEM-4115	4TM-S15
C101	.022 250V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C102	.047 500V		P488N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C103	.001 10%			D6-102	5R5D1	CCD-102	GP210	10TS-D10
C104	.0047 500V		P688N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C105	.1 500V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C106	.0082			DD-822	HVE16D8	CCD-822	B-282	BL-D80
C107	.0022		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C108	.0022		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C109	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C110	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C111	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C112	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C113	.0018		SI 1800	D6-182	L10D18	CCD-182	B-218	10TS-D18
C114	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C115	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C116	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C117	.022 500V		P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C118	.0018		SI 1800	D6-182	L10D18	CCD-182	B-218	10TS-D18

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Grundig Majestic PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg		7801-226					Balance
B	1.3meg*							Volume, Left Channel
C	1.3meg*							Volume, Right Channel
R2A	2meg		7806-227					Bass, Left Channel
B	2meg							Bass, Right Channel
C	50K ♦							Bass, Medium
D	50K ♦							Treble, Medium
E	1meg							Treble, Left Channel
F	1meg							Treble, Right Channel
R3	50K		0279-328					AC Balance, Left Channel
R4	50K		0279-328					AC Balance, Right Channel

* Taps @ 220K, 500K, 900K.
♦ Open at center of range.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	1meg				R42	1.8meg			
R6	150Ω				R43	820K			
R7	330K				R44	1meg			
R8	15K 1W				R45	22meg			
R9	1000Ω				R46	2.2meg			
R10	33K 1W				R47	180K			
R11	1800Ω				R48	100K			
R12	330Ω				R49	2.2meg			
R13	33Ω				R50	100K			
R14	22Ω				R51	220K			
R15	820K				R52	680K			
R16	1000Ω				R53	10meg			
R17	33K				R54	4.7meg			
R18	33K 1W				R55	100K			
R19	220Ω				R56	56K			
R20	10Ω				R57	100K			
R21	47K				R58	82K			
R22	56K				R59	39K			
R23	1000Ω				R60	10K			
R24	100Ω				R61	15K			
R25	220Ω				R62	470K			
R26	10Ω				R63	100K			
R27	33K				R64	100K			
R28	270K				R65	18K			
R29	68K				R66	180K			
R30	1000Ω				R67	100K			
R31	68K 1W				R68	10meg			
R32	12K				R69	68K			
R33	1meg				R70	1000Ω			
R34	1meg				R71	270K			
R35	220Ω				R72	22K			
R36	33K				R73	68K			
R37	47K				R74	56K			
R38	100K				R75	180K			
R39	82K				R76	2.2meg			
R40	4.7meg				R77	10meg			
R41	1.5meg				R78	220K			

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R79	4.7meg				R110	47K			
R80	100K				R111	1000Ω			
R81	100K				R112	390K			
R82	120K				R113	47K			
R83	680K				R114	390K			
R84	56K				R115	100Ω			
R85	470K				R116	100Ω			
R86	100K				R117	100K			
R87	100K				R118	10meg			
R88	100K				R119	220K			
R89	100K				R120	33K			
R90	18K				R121	270Ω			
R91	10meg				R122	10K			
R92	68K				R123	2200Ω			
R93	1000Ω				R124	1meg			
R94	270K				R125	1000Ω			
R95	22K				R126	47K			
R96	68K				R127	1000Ω			
R97	56K				R128	390K			
R98	80Ω				R129	100Ω			
R99	4.7meg				R130	47K			
R100	4.7meg				R131	390K			
R101	100K				R132	100Ω			
R102	10meg				R133	1000Ω 4W	PW5-1000	5W-SQ-1000	
R103	220K				R134	100K			
R104	33K				R135	68K			
R105	270Ω				R136	1000Ω			
R106	10K				R137	100Ω			
R107	2200Ω				R138	100Ω			
R108	1meg				R139	600Ω 2W			
R109	1000Ω								

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Grundig Majestic PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	FM Ant. Matching	9238-069					① Wound on 100Ω
L2	FM Ant.	9231-027					
L3	RF Choke	BV1975					
L4	RF Choke	BV1956 ①					
L5	FM RF	9226-037					
L6	RF Choke	BV1976					
L7	FM Osc.	9226-038					
L8	RF Choke	BV1960					
L9	FM Mixer Plate	9226-032					
L10	1st FM IF	9226-033					
L11	RF Choke	9238-050					
L12	SW 2 Ant.	9232-011					
L13	SW 1 Ant.	9231-016					
L14	Loopstick	9233-021	BC-419	705-A		T532	
L15	460KC IF Trap	9208-055					
L16	BC Ant.	9208-059					
L17	SW 2 Osc.	9232-008					
L18	SW 1 Osc.	9234-017					
L19	BC Osc.	BV1681					
L20A	2nd FM IF	7207-336					
B	1st AM IF						
L21A	3rd FM IF	7207-337					
B	2nd AM IF						
L22	3rd AM IF	9204-014					
L23	Tone Choke	9227-052					
L24	Tone Choke	9227-057					

PARTS LIST AND DESCRIPTIONS (Continued)

CROSSOVER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC RES.	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: Grundig Majestic PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L25		.3Ω	.7 H	9030-016					
L26		.3Ω	.7 H	9030-016					

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	RATINGS: DC RES.	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: Grundig Majestic PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L27	.060A	60Ω	1.8HY	9048-039		C-2327			

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	REPLACEMENT DATA: Grundig Majestic PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	220V Tap② 117V② 1.1A	250V② .320A AC	6.3V② 3.6A	9009-003					
	SEC. 3	SEC. 4	SEC. 5						
	1.3V② 2.3A	5V② 2.3A	15V② .001A DC						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: Grundig Majestic PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	9000Ω CT	2-4Ω	9078-052					
T3	9000Ω CT	2-4Ω	9078-051					

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: Grundig Majestic PART No.	QUAM PART No.	NOTES
SP1	10"	PM	3-4Ω	7003-004	10A6A	
SP2	5"x 7"	PM	1-2Ω	0459-000	57A15	
SP3	5"x 7"	PM	1-2Ω	0459-000	57A15	
SP4	10"	PM	3-4Ω	7003-004	10A6A	
SP5	5"x 7"	PM	1-2Ω	0459-000	57A15	
SP6	5"x 7"	PM	1-2Ω	0459-000	57A15	

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: Grundig Majestic PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.150A	B250C200N2			
M2	.001A	E14C350			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Grundig Majestic PART No. FUSE	Grundig Majestic PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3		2½A* 125V S/B						

* 1 1/4A 220V used when AC input is 220VAC.

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	Grundig Majestic PART No. CARTRIDGE	Grundig Majestic PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
M4									

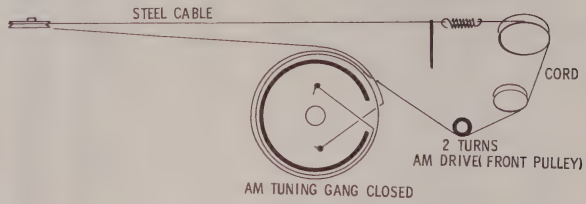
MISCELLANEOUS

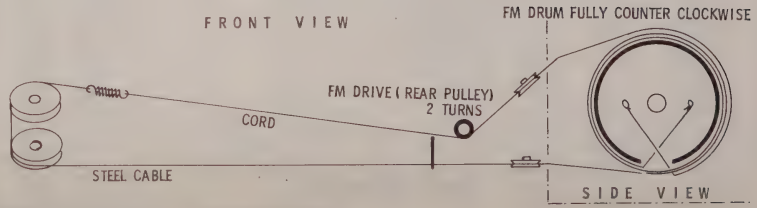
ITEM No.	PART NAME	Grundig Majestic PART No.	NOTES
M5	FM Tuner		Complete (Includes Tuning Cap. #9653-609)
M6	Tuning Cap.	9653-012	2 Gang (PD299613)
M7	Switch		Function Selector (Pushbutton Type) Includes, Off-TR-PU-FA-BC-SW I-SW II-FM
M8	Switch	7612-056/051	Tone (Pushbutton Type) Includes JAZZ-Voice-Multisonic-Orch. - & Stereo
M9	Detector Ass'y.	7207-203	

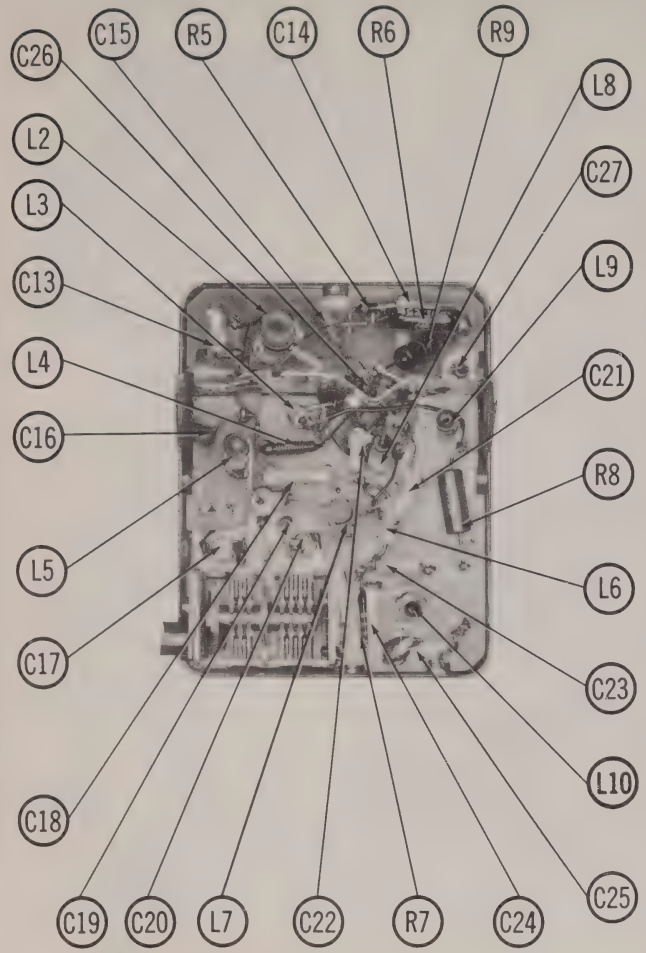
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

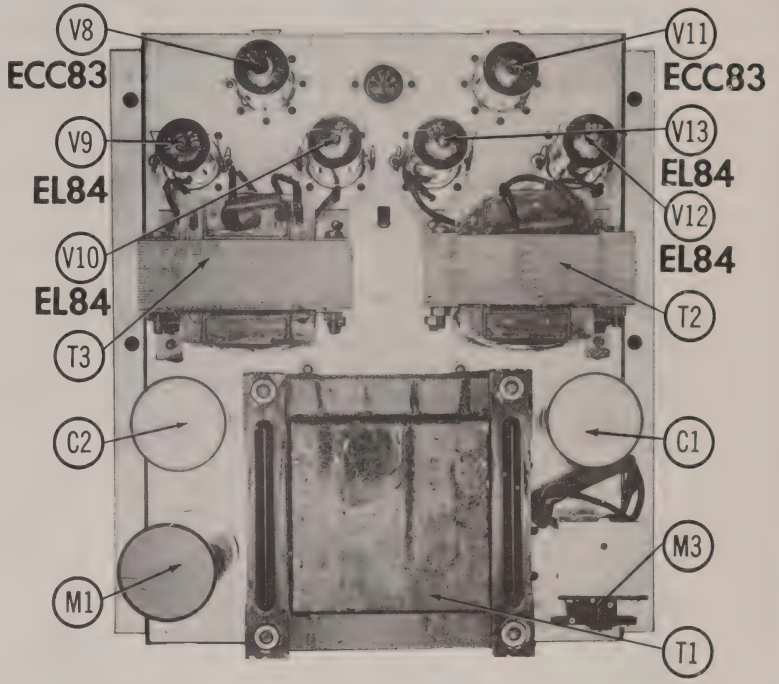
DIAL CORD STRINGING





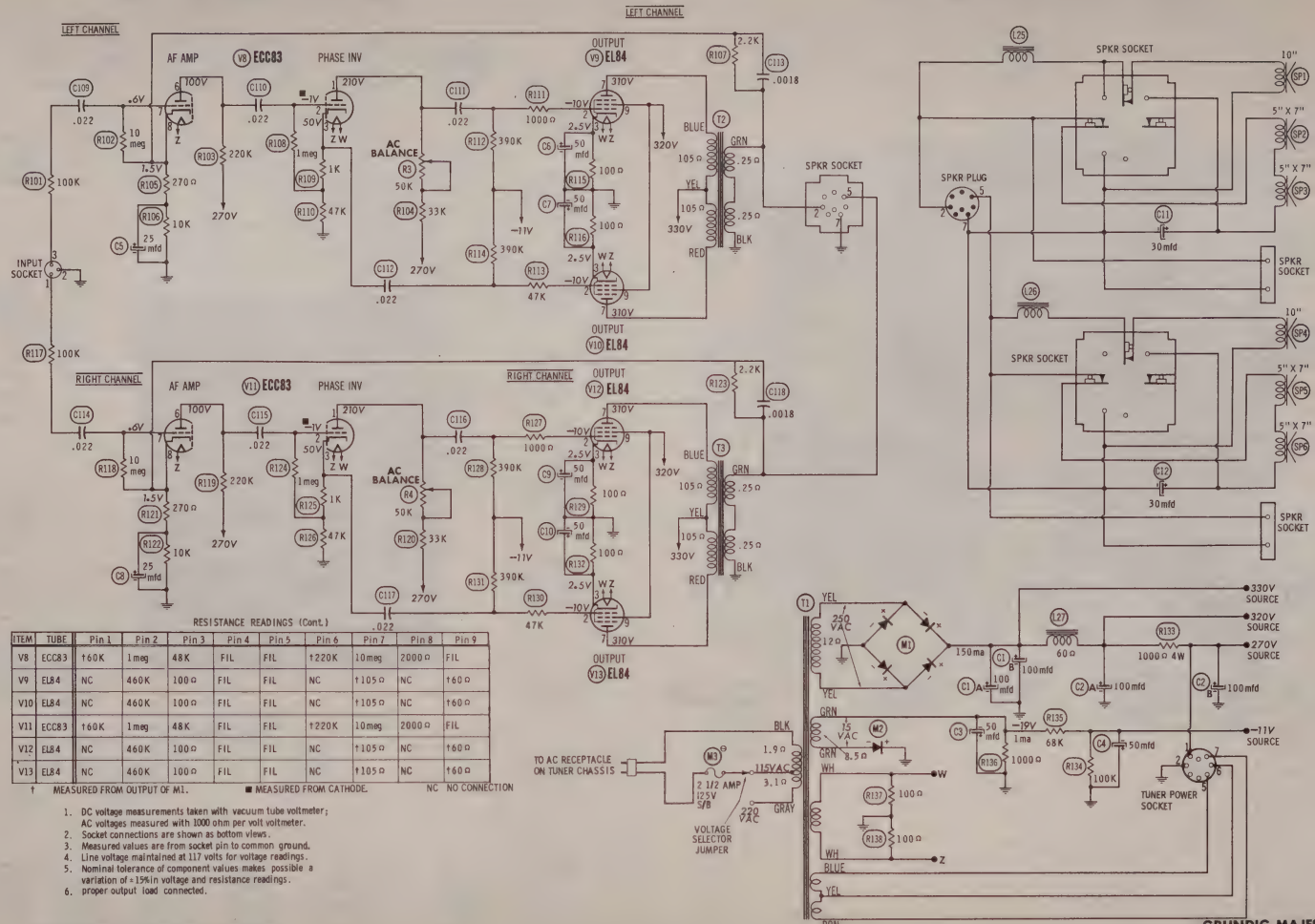


FM RF SUB CHASSIS



AMP CHASSIS-TOP VIEW

GRUNDIG MAJESTIC
MODEL 5019U



RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V8	ECC83	†60K	1meg	48K	FIL	FIL	†220K	10meg	2000Ω	FIL
V9	EL84	NC	460K	100Ω	FIL	FIL	NC	†105Ω	NC	†60Ω
V10	EL84	NC	460K	100Ω	FIL	FIL	NC	†105Ω	NC	†60Ω
V11	ECC83	†60K	1meg	48K	FIL	FIL	†220K	10meg	2000Ω	FIL
V12	EL84	NC	460K	100Ω	FIL	FIL	NC	†105Ω	NC	†60Ω
V13	EL84	NC	460K	100Ω	FIL	FIL	NC	†105Ω	NC	†60Ω

† MEASURED FROM OUTPUT OF M1. ■ MEASURED FROM CATHODE. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. proper output load connected.

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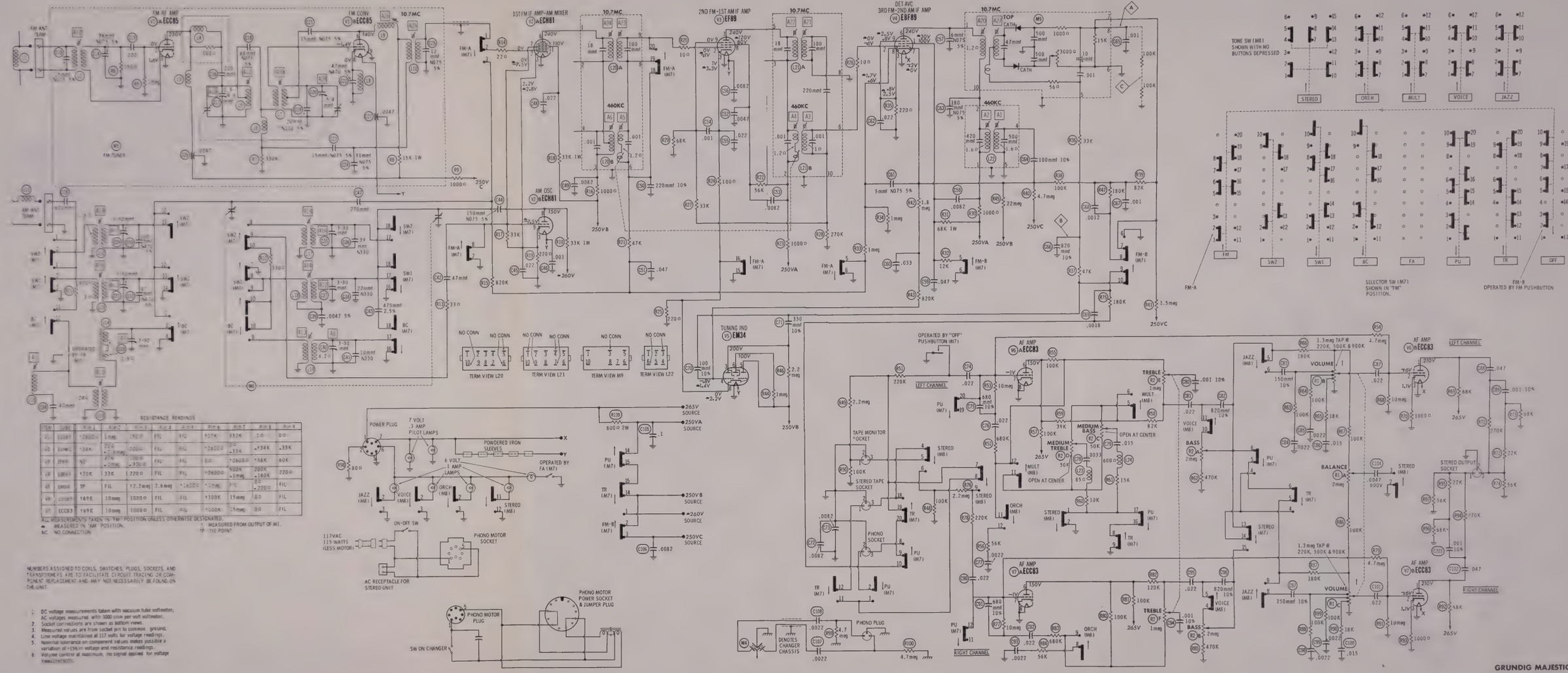

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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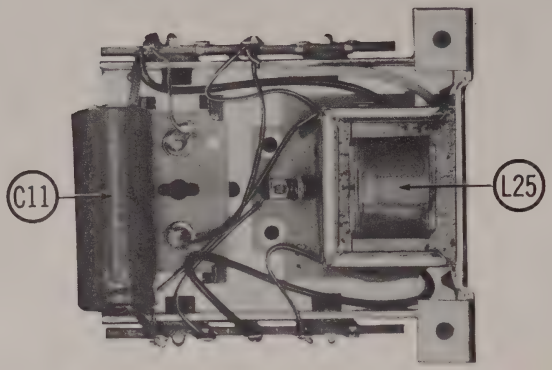
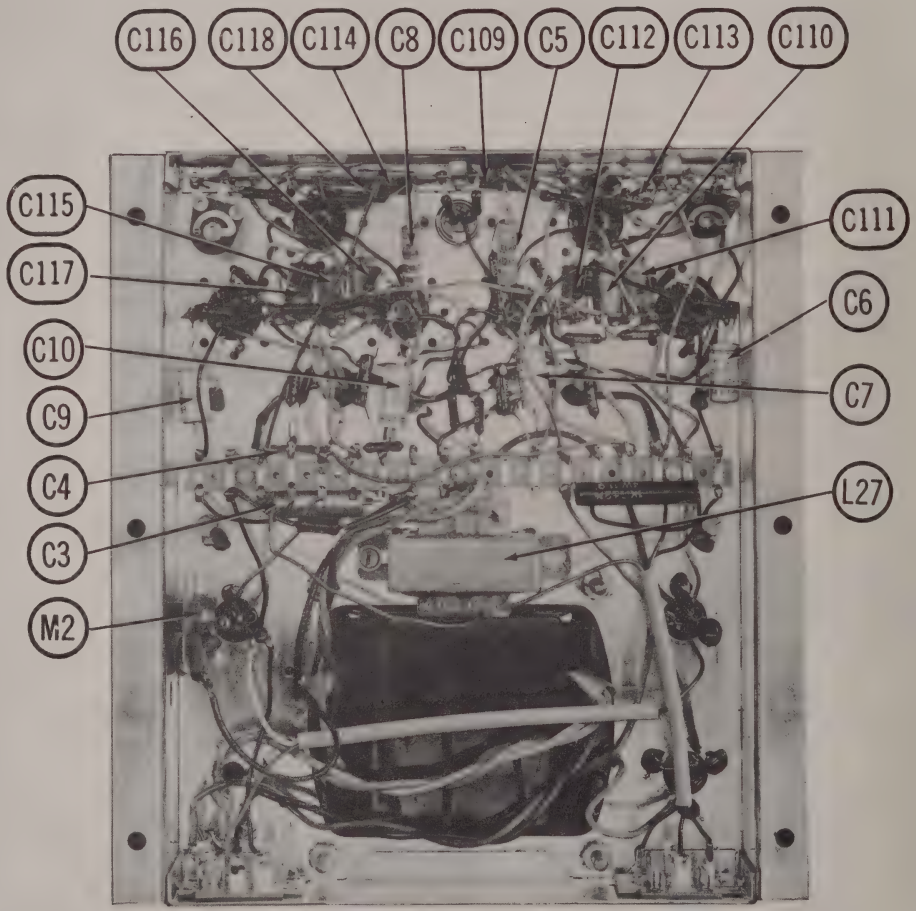
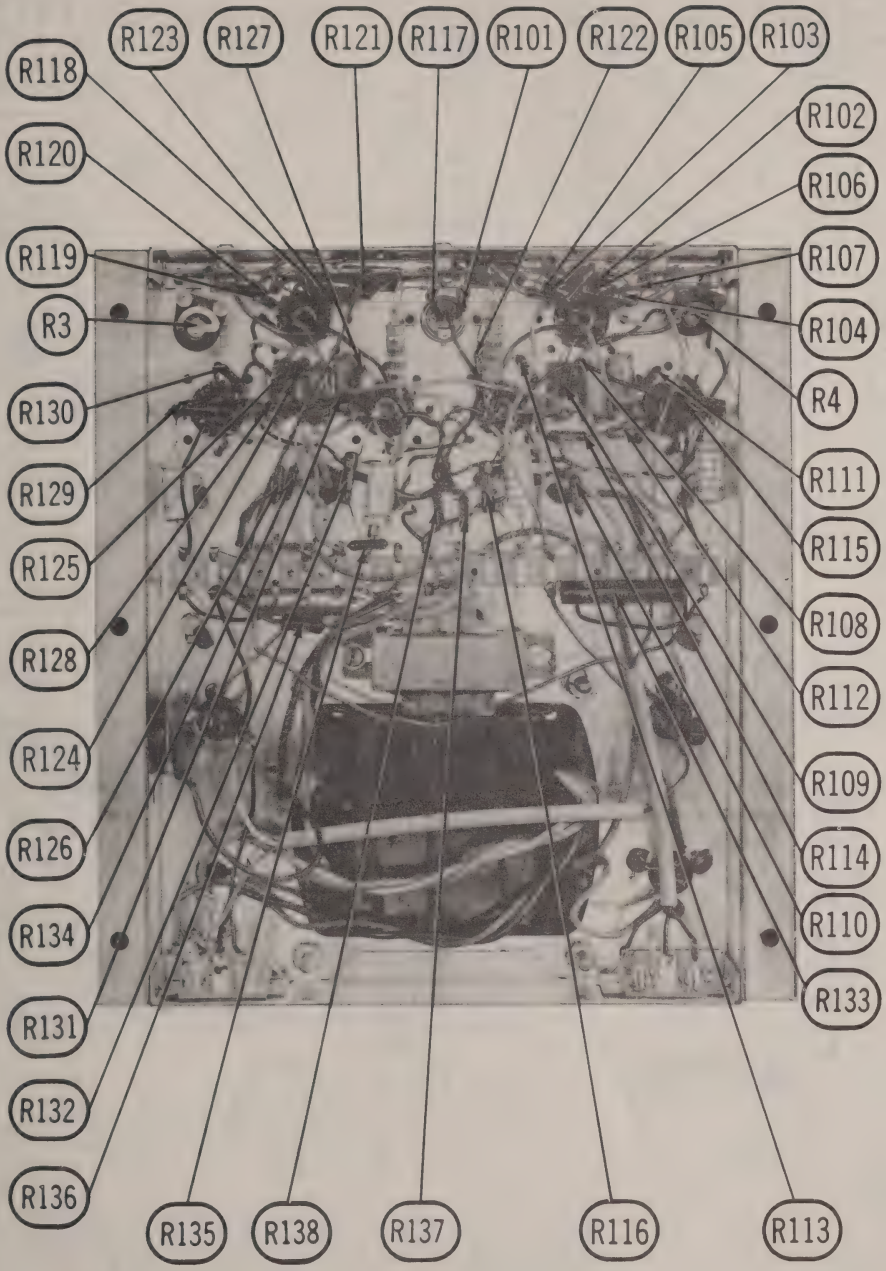


SPEAKER CONNECTION SUB CHASSIS



AMP CHASSIS BOTTOM VIEW-CAPACITOR & MISC. IDENT.

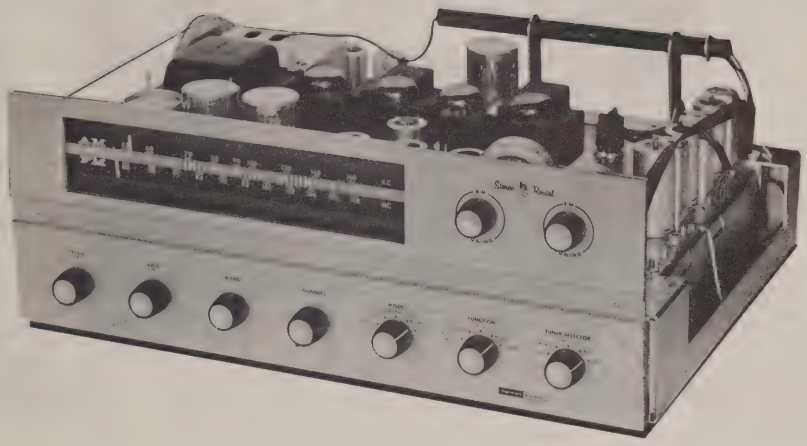


AMP CHASSIS BOTTOM VIEW-RESISTOR IDENT.

PHOTOFACT® Folder

**HARMAN-KARDON
MODEL TA224**

HARMAN-KARDON
MODEL TA224



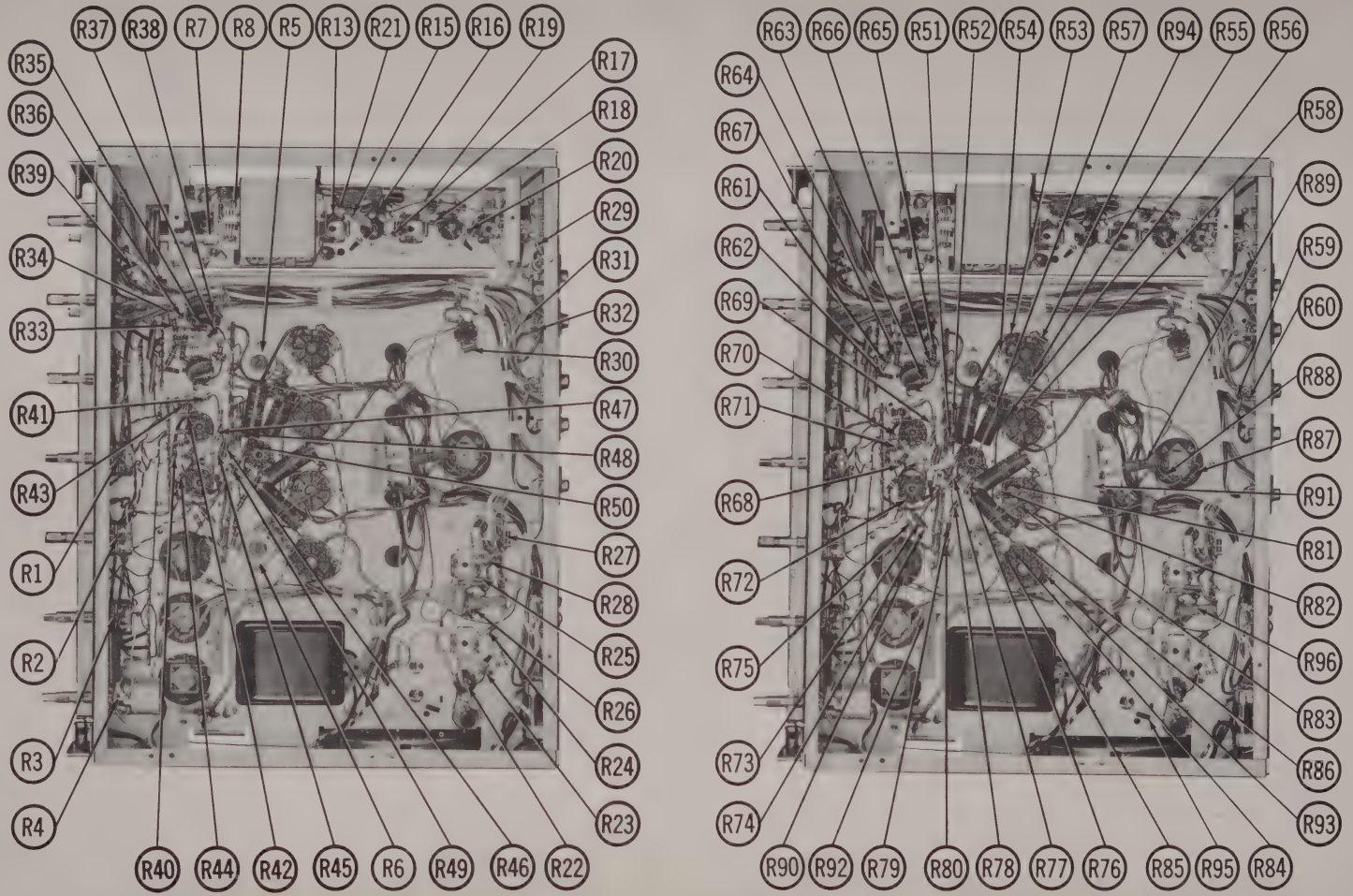
HARMAN-KARDON
MODEL TA224

TRADE NAME	Harman-Kardon Model TA224 (Stereo Recital)		
MANUFACTURER	Harman-Kardon, Inc., 520 Main Street, Westbury, L. I., N. Y.		
TYPE SET	AC Operated 15 Tube FM-AM Receiver With Stereo Amplifier		
POWER SUPPLY	105 — 125 Volts AC, 60 Cycles	RATING	120 Watts, 1.25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	530 — 1640KC	FREQ. MOD.	88—108MC

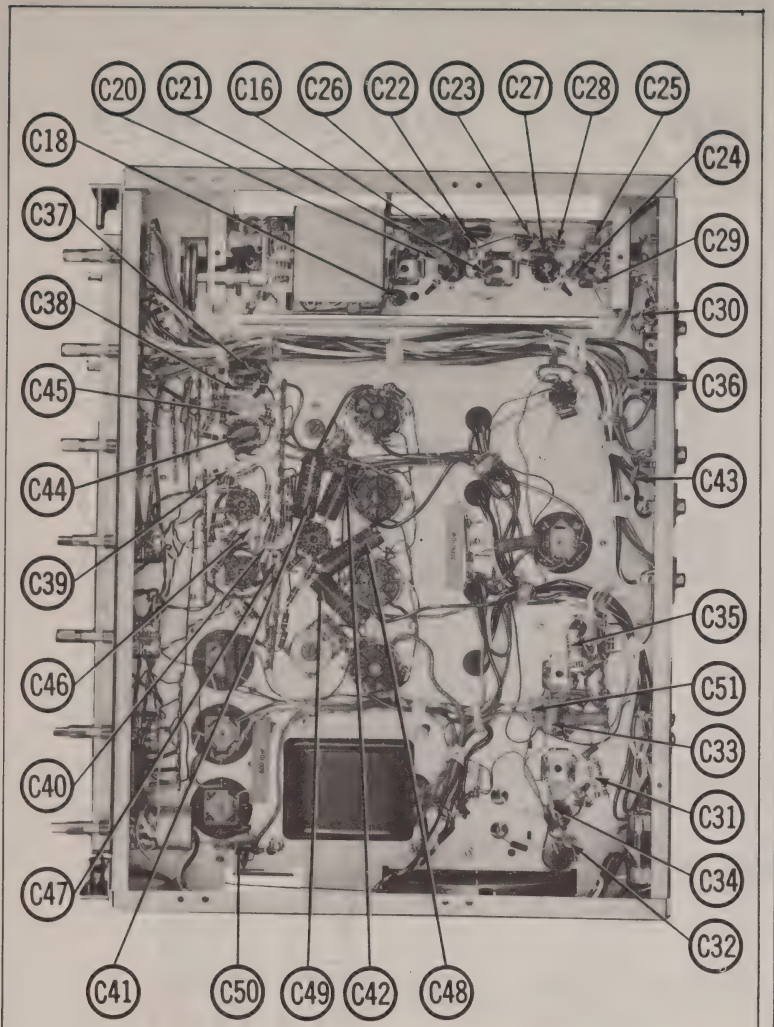
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KK344

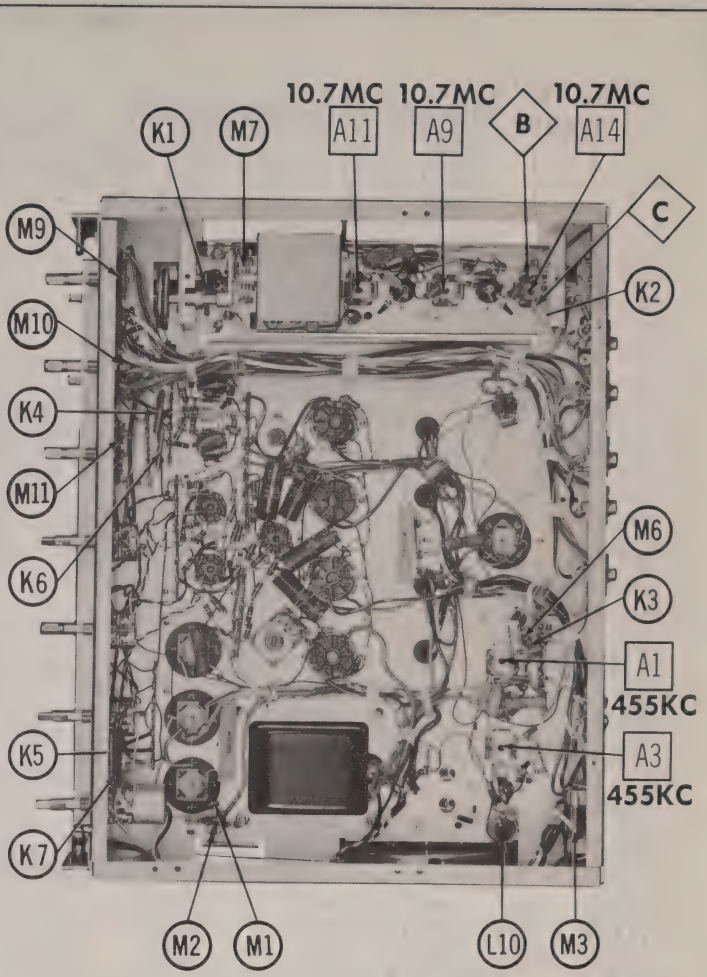
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America



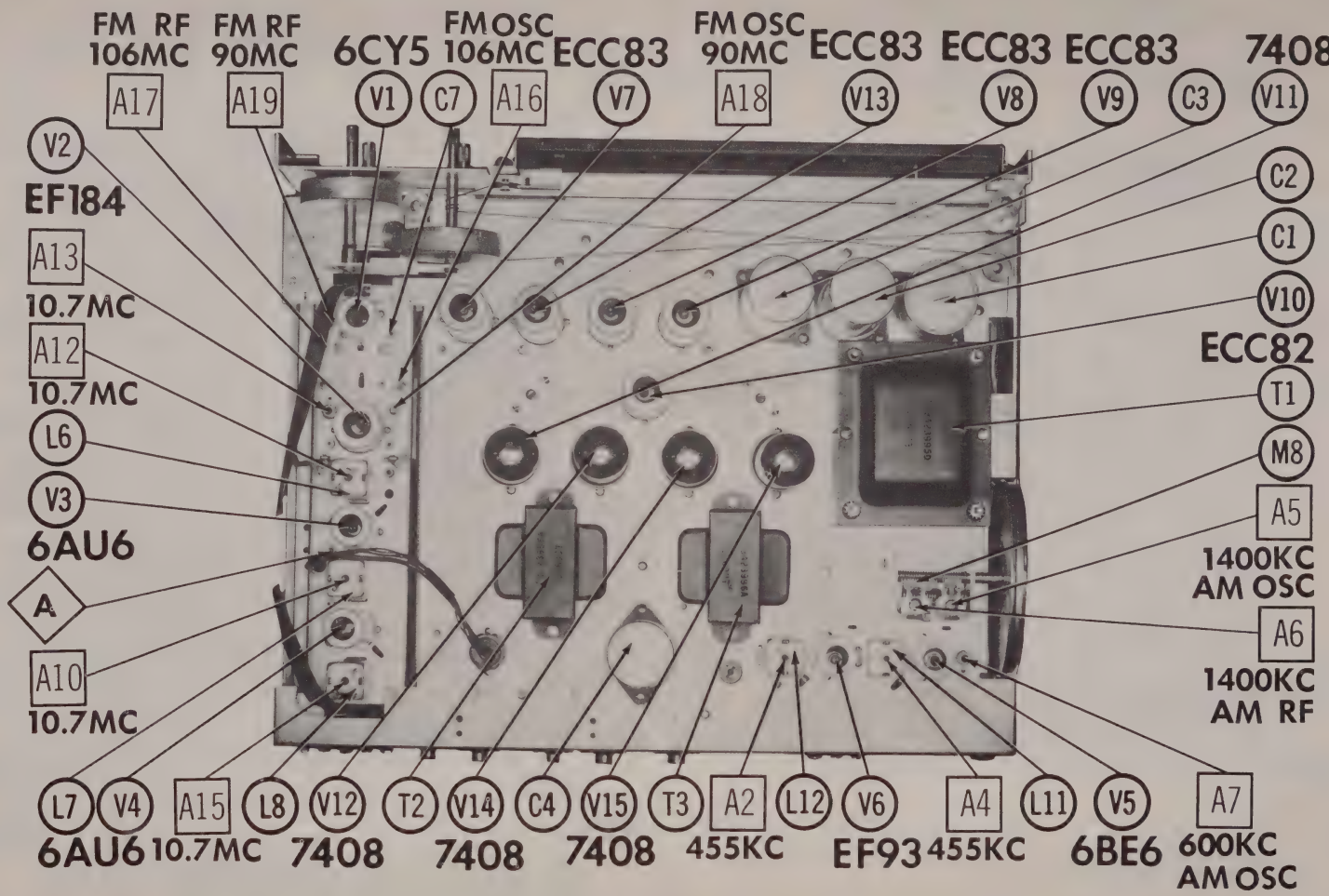
CHASSIS BOTTOM VIEW-RESISTOR IDENT.



CHASSIS BOTTOM VIEW-CAPACITOR IDENT.



CHASSIS BOTTOM VIEW-
-ALIGN., INDUCTOR & MISC. IDENT.



CHASSIS-TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
- A1 thru A4, A7, A9 thru A15.... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440; WALSCO #2526, 2543, 2544, 2545
- A5, A6.... .... GENERAL CEMENT #5004, 5008, 5009; WALSCO #2520
- A16 thru A19.... .... GENERAL CEMENT #8721, 8722; WALSCO #2519

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side to AM antenna terminal. Low side to chassis.	455KC (400~ AM Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	1400KC	1400KC	"	A5, A6	"
3.	"	600KC	600KC	"	A7, A8	Adjust for maximum output. Repeat Steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	High side to FM antenna terminal. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe thru 1meg to point Ⓐ. Common to chassis.	A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	DC probe thru 1meg to point Ⓑ. Common to chassis.	A14	"
6.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	High side to FM antenna terminal. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. thru 47K to point Ⓐ. Low side to chassis.	A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
5.	"	"	"	Vert. amp. thru 47K to point Ⓑ. Low side to chassis.	A14	"
6.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	High side to FM antenna terminal. Low side to chassis.	106MC (Unmod.)	(FM) 106MC	DC probe thru 1meg to point Ⓐ. Common to chassis.	A16, A17	Adjust for maximum deflection.
8.	"	90MC	90MC	"	A18, A19	"

FIG. 1

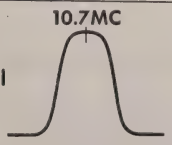
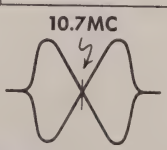
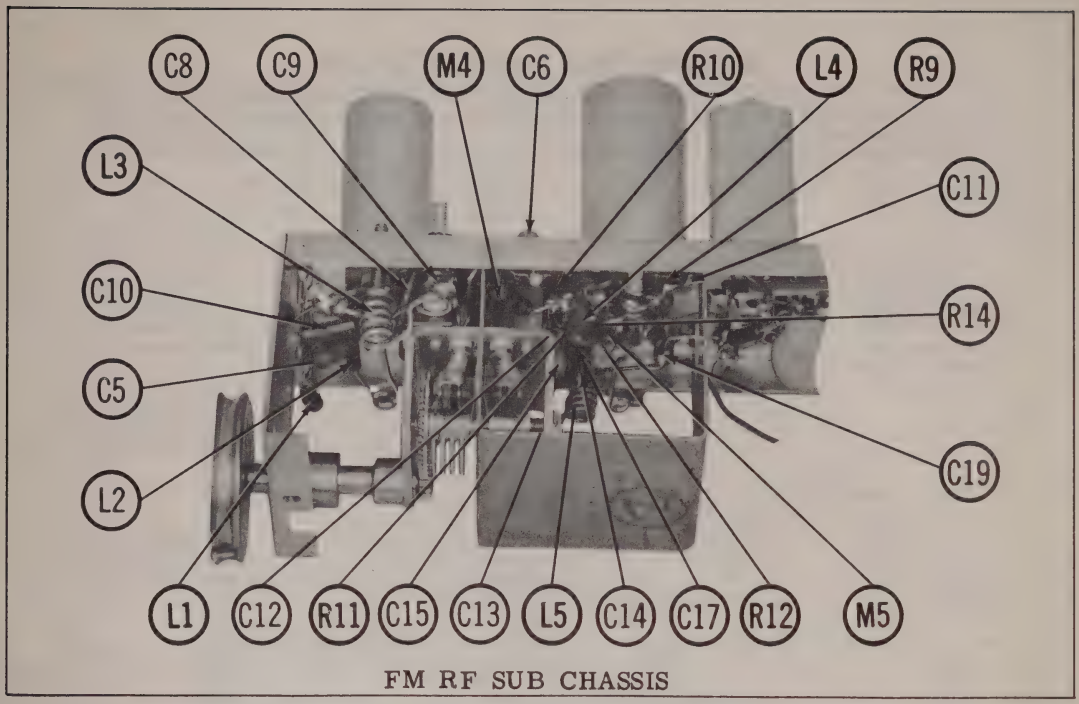
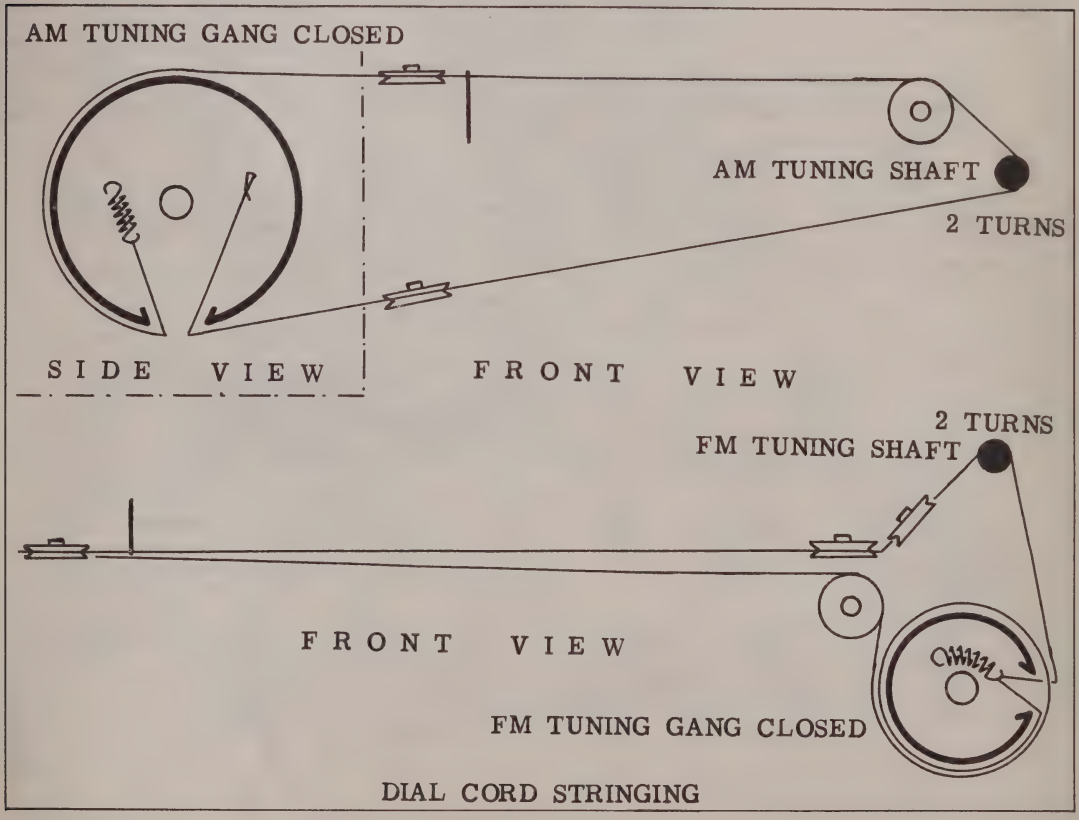


FIG. 2

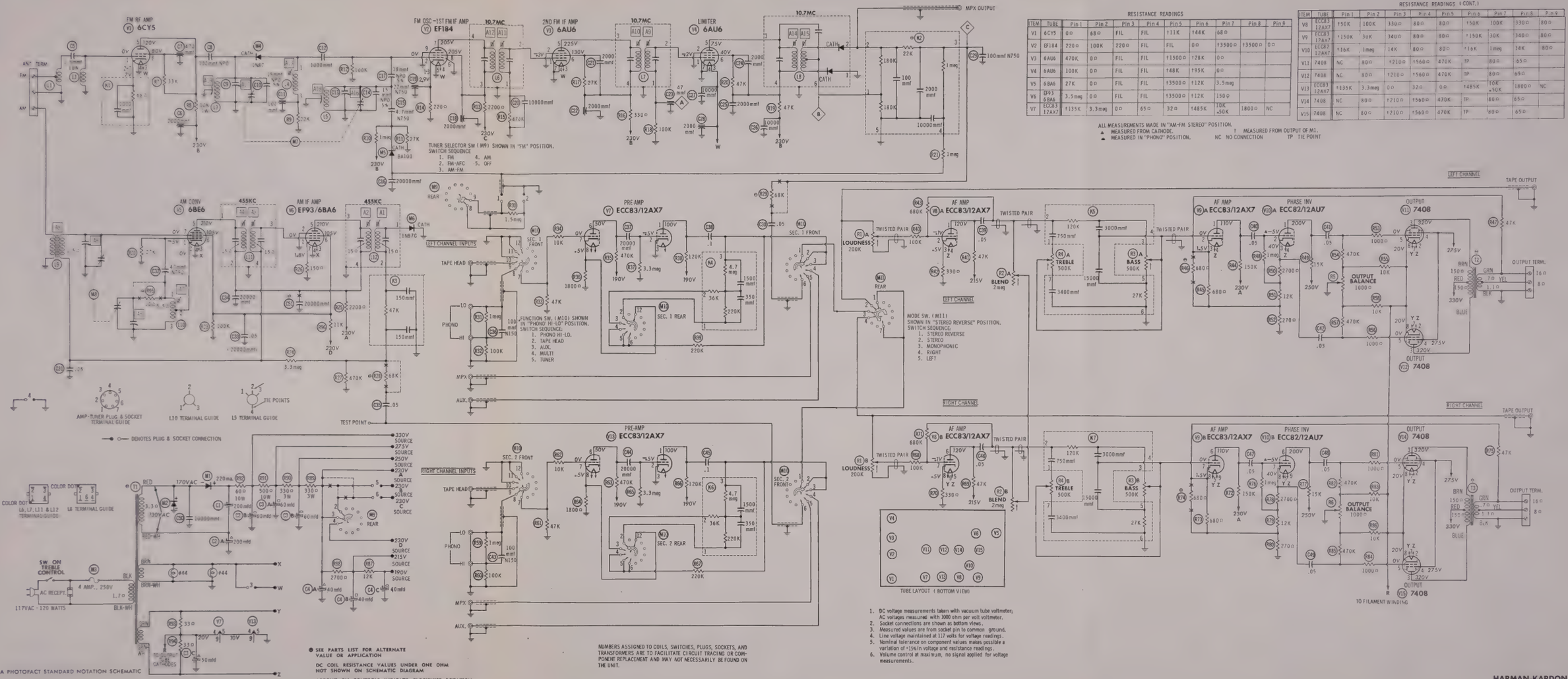




FM RF SUB CHASSIS



DIAL CORD STRINGING



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CY5	0Ω	68Ω	FIL	FIL	†11K	†44K	68Ω		
V2	EF184	220Ω	100K	220Ω	FIL	FIL	0Ω	†3500Ω	†3500Ω	0Ω
V3	6AU6	470K	0Ω	FIL	FIL	†1500Ω	†28K	0Ω		
V4	6AU6	100K	0Ω	FIL	FIL	†48K	†95K	0Ω		
V5	6BA6	27K	0Ω	FIL	FIL	†3500Ω	†12K	3.5meg		
V6	EF93 6BA6	3.5meg	0Ω	FIL	FIL	†3500Ω	†12K	150Ω		
V7	ECC83 12AX7	†135K	3.3meg	0Ω	65Ω	32Ω	†485K	10K ±50K	1800Ω	NC

ALL MEASUREMENTS MADE IN "AM-FM STEREO" POSITION.
▲ MEASURED FROM CATHODE.
▲ MEASURED IN "PHONO" POSITION.
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION
TP TIE POINT

RESISTANCE READINGS (CONT.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V8	ECC83 12AX7	†50K	100K	330Ω	80Ω	80Ω	†50K	100K	330Ω	80Ω
V9	ECC83 12AX7	†150K	30K	340Ω	80Ω	80Ω	†150K	30K	340Ω	80Ω
V10	ECC82 12AX7	†16K	1meg	14K	80Ω	80Ω	†16K	1meg	14K	80Ω
V11	7408	NC	80Ω	†210Ω	†560Ω	470K	TP	80Ω	65Ω	
V12	7408	NC	80Ω	†210Ω	†560Ω	470K	TP	80Ω	65Ω	
V13	ECC83 12AX7	†135K	3.3meg	0Ω	32Ω	0Ω	†485K	10K ±50K	1800Ω	NC
V14	7408	NC	80Ω	†210Ω	†560Ω	470K	TP	80Ω	65Ω	
V15	7408	NC	80Ω	†210Ω	†560Ω	470K	TP	80Ω	65Ω	

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● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

HARMAN-KARDON
MODEL TA224

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6CY5
V2	FM Osc. - 1st FM IF Amp.	EF184
V3	2nd FM IF Amplifier	6AU6
V4	FM Limiter	6AU6
V5	AM Converter	6BE6
V6	AM IF Amplifier	EF93/6BA6
V7	Left Channel Preamp.	ECC83/12AX7
V8	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V9	Left Channel AF Amp. - Right Channel AF Amp.	ECC83/12AX7
V10	Left Channel Phase Inv. - Right Channel Phase Inv.	ECC82/12AU7
V11	Left Channel Output	7408
V12	Left Channel Output	7408
V13	Right Channel Preamp.	ECC83/12AX7
V14	Right Channel Output	7408
V15	Right Channel Output	7408

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Harman-Kardon PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	200	200	JE3163839	AFHS2-24-20	XA0318	XC1-21	FP126		
C2A	▲200	200	JE3163905	AFH3-114-80	XA0318	XC1-21	FP126		
B	▲60	350			BR6035	QT1-18	TC68		
C3A	■60	350	JE3423997	AFH4-102-50	B0720	XC2-33	FP244	TMD-2545	TVL-2710
B	▲60	350			BR6035	QT1-15	TC68	TD-60-350	TVA-1613
C	▲50	25							
C4A	▲40	350	JE3163841	AFH4-53		XC3-40	FP238	TMD-2390	TVL-2764
B	■40	350					TC78	TD-40-350	TVA-1611
C	▲40	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	1.5	10%		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C6	2000								
C7	470								
C8	100	NPO		NPO-DI 100	DTZ-100	C10T1C	CCTO-101	CNO-310	10TCC-T10
C9									
C10	15	NPO 5%		1469-000015	TCZ-15	22R5Q15	CM-19B-150J	CNO-415	MS-415
C11	100			EF-0001	MFT-100				
C12	1000			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13									
C14	15	NPO 5%		1469-000015	TCZ-15	22R5Q15	CM-19B-150J	CNO-415	MS-415
C15	4.7	N750			DTN-5	C10V5U	CCTN-050	CN7-547	10TCU-V50
C16	20000			BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C17	18	NPO 5%		1469-000018	TCZ-18	22R5Q18	CM-19B-180J	CNO-418	MS-418
C18	2000								
C19	22	N750							
C20	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	2000			BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C22	2000								
C23	47								
C24	2000			BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C25	2000			BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C26	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	10000			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C28	2000								
C29	100	N750		N750-DI 100	DTN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C30	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C31	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C32	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C33	.05 200V	(20000) †	P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C34	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C35	.05 200V		P288N-05	DD-503	CUB2S5	4DP-3-503	GEM-415	2TM-S50
C36	100 N150					*		10TCP-T10
C37	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C38	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C39	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C40	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C41	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50
C42	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50
C43	100 N150					*		10TCP-T10
C44	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C45	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C46	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C47	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C48	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50
C49	.05 600V		P688N-05	DD-503	CUB6S5	6DP-3-503	GEM-615	6TM-S50
C50	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C51	20000	Note 1	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Harman-Kardon PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	200K	½	RV3424045	F1-35		† QJ-1515R	■ UE4189	Loudness, Left Channel
B	200K	½		R2-35				Loudness, Right Channel
R2A	2meg	½	RV3424165	B-75	AD47-2meg-S		FA26L	Blend, Left Channel
B	2meg	½		SR-75	Not Req.		RU26L	Blend, Right Channel
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	500K	½	RV3424044	F1-42		† QJ-1516R	▲ UE4190	Bass, Left Channel
B	500K	½		R2-42				Bass, Right Channel
R4A	500K	½	RV3424166	F1-42		†† QJ-1517R	▲ UE4192-S	Treble, Left Channel
B	500K	½		R2-42				Treble, Right Channel
C	Switch			KR-1				Power Off-On
R5A	1000Ω	½	RV2783331			B11-108	TA13L	Output Balance, Left Channel
B	Shaft					TM4	Not Req.	
R6A	1000Ω	½	RV2783331			B11-108	TA13L	Output Balance, Right Channel
B	Shaft					TM4	Not Req.	

† "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B13-130, P17-102 (Panel)
(Not available as a factory assembled unit). B13-130, R9-110 (Rear)
† "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B13-133, P17-102 (Panel)
(Not available as a factory assembled unit). B13-133, R9-110 (Rear)
†† "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B13-133, P17-102 (Panel)
(Not available as a factory assembled unit). B13-133, R9-110 (Rear)
76-1 (Switch)

■ "STA-LOC" Equivalent: FA254L, RU254L, OF1062, IS1375.
▲ "STA-LOC" Equivalent: FA55A, RU55A, OF1062, IS1375.
▲ "STA-LOC" Equivalent: FA55A, RU55A, OF1062, IS1375, US41.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: WORKMAN TV PART No.	REPLACEMENT DATA: REMARKS
R7	33K			
R8	10K 1W			
R9	22K			
R10	1meg			
R11	27K			
R12	100K			
R13	2200Ω			
R14	220Ω			
R15	470K			
R16	330Ω			
R17	27K			
R18	100K			
R19	47K			
R20	47K			
R21	1meg			
R22	27K			
R23	100K			
R24	3.3meg			
R25	2200Ω			
R26	150Ω			
R27	470K			
R28	68K			Note 1
R29	68K			Note 1
R30	1.5meg			
R31	1meg			
R32	100K			
R33	47K			
R34	10K			
R35	470K			
R36	1800Ω			
R37	3.3meg			
R38	120K			
R39	220K			
R40	100K			
R41	47K			
R42	330Ω			
R43	680K			
R44	150K			
R45	680Ω			
R46	680Ω			Note 1
R47	47K			
R48	1meg			
R49	15K			
R50	2700Ω			
R51	12K			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: WORKMAN TV PART No.	REPLACEMENT DATA: REMARKS
R52	270Ω			
R53	1000Ω			
R54	470K			
R55	10K			
R56	1000Ω			
R57	470K			
R58	10K			
R59	1meg			
R60	100K			
R61	47K			
R62	10K			
R63	470K			
R64	1800Ω			
R65	3.3meg			
R66	120K			
R67	220K			
R68	100K			
R69	47K			
R70	330Ω			
R71	680K			
R72	150K			
R73	680Ω			
R74	680Ω			Note 1
R75	47K			
R76	1meg			
R77	15K			
R78	2700Ω			
R79	12K			
R80	270Ω			
R81	1000Ω			
R82	470K			
R83	10K			
R84	1000Ω			
R85	470K			
R86	10K			
R87	12K			
R88	2700Ω			
R89	330Ω 3W	PW5-330	5W-SQ-330	
R90	330Ω 3W	PW5-330	5W-SQ-330	
R91	500Ω 10W	PW10-500	10W-SQ-500	
R92	60Ω 10W	PW10-60	10W-SQ-60	
R93	33Ω			
R94	33Ω			
R95	10Ω			Note 1
R96	11K			

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: Harman-Kardon PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	FM Ant.	GLCOM3082					
L2	RF Choke	GLCOM3083					
L3	FM RF	GL3414014					
L4	1st FM IF	GL3414010					
L5	FM Osc.	GL3414015					
L6	2nd FM IF	GT3414011	FM-254	1463	RTC-8599	T633	
L7	3rd FM IF	GT3414012	FM-254	1463	RTC-8599	T633	
L8	Discriminator	GT3414013	FM-253 *	1464 *	RTC-8665 *	T634*	* Connect two crystals externally.
L9	Loopstick	GL3424083	BC-418	705-A		T532	
L10	AM Osc.	GL3484026	BC-393	70-OSC	RTC-8647	T512	
L11	1st AM IF	GTCOM4152	BC-352	12-C1	RTC-8632	T607	
L12	2nd AM IF	GTCOM4153	BC-353	12-C2	RTC-8633	T608	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	REPLACEMENT DATA: Harman-Kardon PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V Ⓐ 1.25A	130V Ⓐ .750A DC	6.3V Ⓐ 2.1A	FT3423995D ①					① Alternate Part #FT3423995
	SEC. 3	SEC. 4	SEC. 5						
	6.3V Ⓐ 2.8A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: Harman-Kardon PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6200Ω CT	16Ω Tap Ⓐ 8Ω	FT3423996A ①					① Alternate Part #FT3423996
T3	6200Ω CT	16Ω Tap Ⓐ 8Ω	FT3423996A ①					

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Harman-Kardon PART No.	REPLACEMENT DATA	
K1	FM RF Cath.	1000mmf, 68Ω	STCOM4018		
K2	Ratio Detector Network	100mmf, 2000mmf, 10000mmf, 22K, 180K, 180K, 1meg	PCCOM3081A *	Sprague	C-8
K3	AM Diode Filter	150mmf, 150mmf, 47K	PC781599	Aerovox Centralab Cornell-Dubilier Sprague	PA-98 PC-51 1117M2 D-2
K4	Function Switch Comp.	350mmf, 1500mmf, 36K, 220K, 4.7meg	PCCOM4151		
K5	Tone Comp.	750mmf, 3000mmf, 3400mmf, 15000mmf, 27K, 120K	PC2492902	Sprague	TC-22
K6	Function Switch Comp.	350mmf, 1500mmf, 36K, 220K, 4.7meg	PCCOM4151		
K7	Tone Comp.	750mmf, 3000mmf, 3400mmf, 15000mmf, 27K, 120K	PC2492902	Sprague	TC-22

* Some versions may use Alternate Unit (Part #PCCOM4043) in this application.

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: Harman-Kardon PART No.	RCA PART No.	SARKES TARZIAN PART No.	NOTES
M1	.220A	Z3424114 *	1N1763 *	40H *	* Silicon
M2	.220A	Z3424114 *	1N1763 *	40H *	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Harman-Kardon PART No. FUSE	Harman-Kardon PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	3AG	4A 250V	ZCOM3299	P1142116	313004	357001	MTH4	4405

PARTS LIST AND DESCRIPTIONS (Continued)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Harman-Kardon PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M4	1N87			1N87	FM Mixer Diode (Pigtail)
M5	BA100			1N60	AFC Diode (Pigtail)
M6	1N87G			1N87	AM Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	Harman-Kardon PART No.	NOTES
M7	Tuning Cap.	JV3413983	FM, 2 Gang
M8	Tuning Cap.	JVCOM4041	AM, 2 Gang (Ant. 25—394mmf, Osc. 26—139mmf)
M9	Switch	ER3423999	RF Selector Switch (Rotary Wafer Type)
M10	Switch	ER3423998	Function (Rotary Wafer Type)
M11	Switch	ER3424035	Mode (Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	P3424089	
Dial Pointer	P3424093	
Knob	PCOM3576	Tuning
Knob	PCOM3250	Rear; Loudness, Bass, Treble, Blend
Knob	PCOM3575	Front; Loudness, Bass, Treble, Blend

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

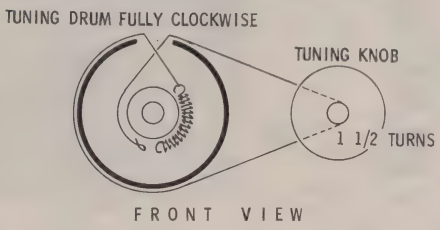
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT® Folder with CIRCUITRACE®

**MAGNAVOX
MODEL AM-60**

MAGNAVOX
MODEL AM-60

DRIVE CORD STRINGING



MAGNAVOX
MODEL AM-60

TRADE NAME	Magnavox Model AM-60
MANUFACTURER	The Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
RATING	8MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST	535 – 1605KC
	15MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A6..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A5..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4, A5	"
3.	"	535KC	535KC	"	A6, A7	Adjust for maximum output. A7 is adjusted by moving coil along ferrite core. Repeat Steps 2 and 3.

SET 553 FOLDER 9

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF767

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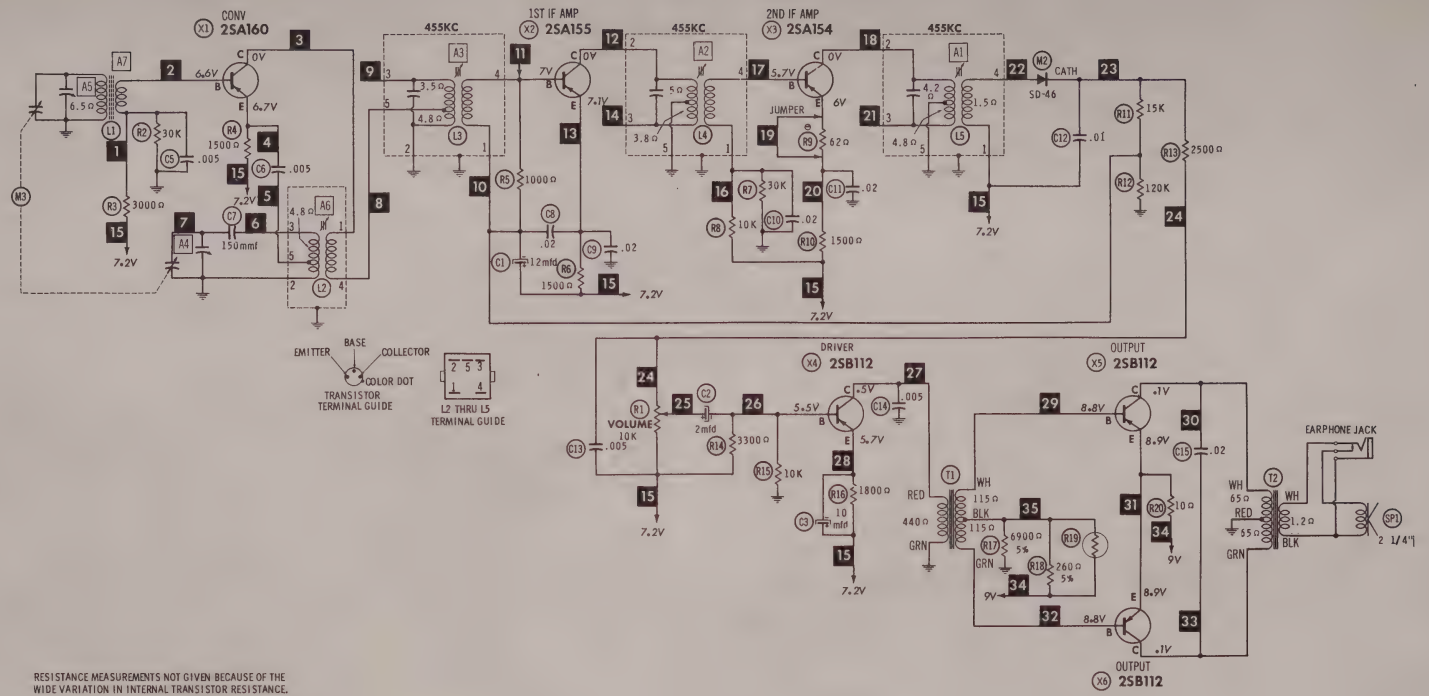

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MAGNAVOX
MODEL AM-60

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	2SA160	Converter			PNP
	2SA159*	Converter			PNP
X2	2SA155	1st IF Amplifier			PNP
	2SA154*	1st IF Amplifier			PNP
	2SA156*	1st IF Amplifier			PNP
X3	2SA154	2nd IF Amplifier			PNP
	2SA156*	2nd IF Amplifier			PNP
X4	2SB112	Driver			PNP
X5	2SB112	Output			PNP
X6	2SB112	Output			PNP

* Alternate

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	3	270049-1		NLW10-6	MT1-5	TT3X10	MLV10-3	TE-1053
C2	2	12	270051-1		NLW2-50	MT1-1	TT12X2	MLV2-12	TE-1121
C3	10	3	270049-1		NLW10-6	MT1-5	TT3X10	MLV10-3	TE-1053
C4A	20	10	270056-1						
B	20	10							
C	20	10							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C6	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	150		SI 150	D6-151	L10T15	CCD-151	GP315	10TS-T15
C8	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C9	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C13	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C14	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C15	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	10K	1/4	220168-1					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		REMARKS
		IRC PART No.	WORKMAN TV PART No.	
R2	30K			
R3	3000Ω			
R4	1500Ω			
R5	1000Ω			
R6	1500Ω			
R7	30K			
R8	10K			
R9	62Ω			Note 1
R10	1500Ω			
R11	15K			
R12	120K			
R13	2500Ω			
R14	3300Ω			
R15	10K			
R16	1800Ω			
R17	6900Ω 5%			
R18	260Ω 5%			
R19	Temp. Comp.			Pt. #230132-1
R20	10Ω			
R21	680Ω			

Note 1. Selected to match characteristics of transistor. Will vary from 0-120Ω.

PRINTED BOARD

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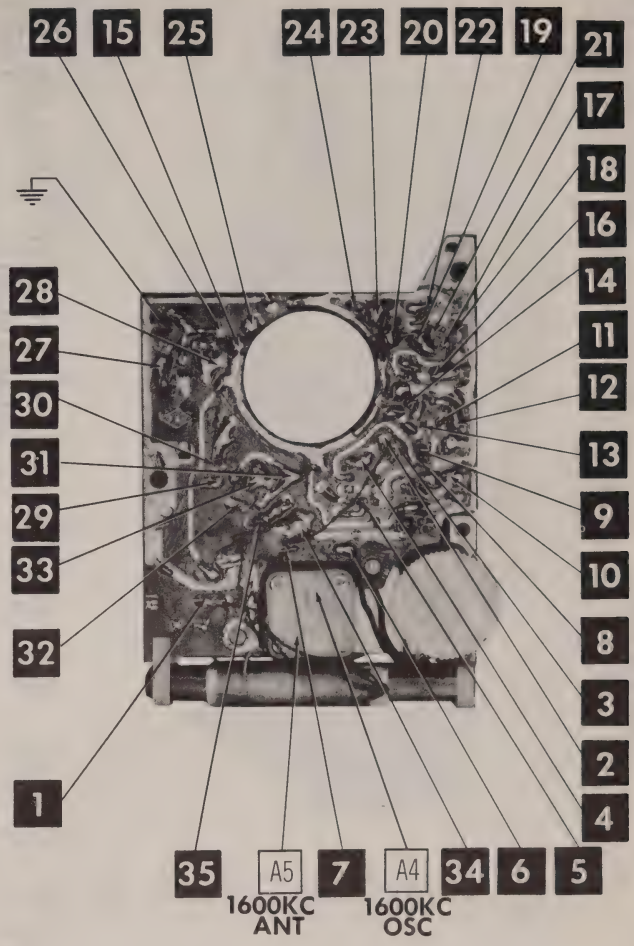


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MAGNAVOX PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	360873-1					
L2	Osc.	360874-1					
L3	1st IF	360868-1					
L4	2nd IF	360869-1					
L5	3rd IF	360870-1					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1	320091-1					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1400Ω CT	6-8Ω	320092-1					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	580064-1		

BATTERIES

ITEM No.	VOLTAGE	MAGNAVOX PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V	530064-1		2U6		216		M-1604	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MAGNAVOX PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	
M2	SD46	530063-1		1N60	Detector

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M3	Tuning Gang	260160-1	2 Gang

CABINETS & CABINET PARTS

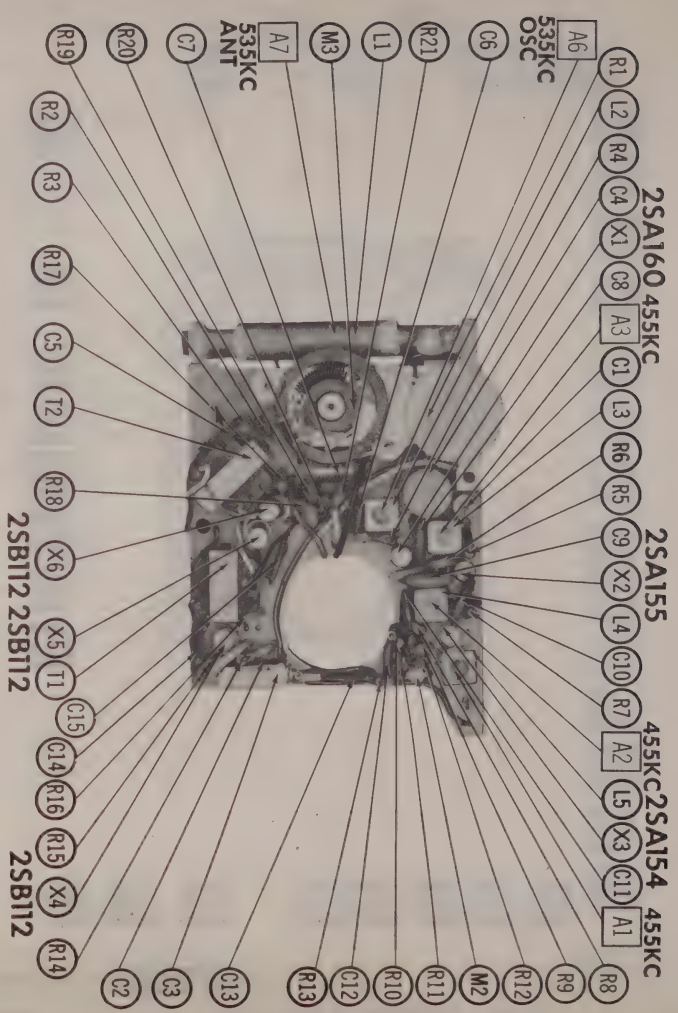
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Indicator	140482-1	
Knob	140479-1	Tuning, Ivory
Knob	140479-2	Tuning, Red
Knob	140480-1	Volume, Ivory
Knob	140480-2	Volume, Red
Cabinet	140477-1	Front, Ivory
Cabinet	140477-2	Front, Red
Cabinet	140478-1	Back, Ivory
Cabinet	140478-2	Back, Red
Case	400314-1	Radio
Case	400315-1	Earphone
Strap	400317-1	Carrying

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

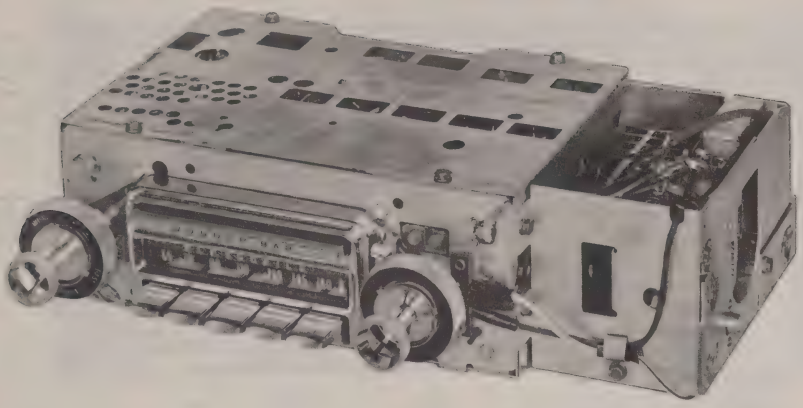
CHASSIS—TOP VIEW



PHOTOFACT® Folder with CIRCUITRACE®

OLDSMOBILE MODEL 989393

OLDSMOBILE
MODEL 989393



TRADE NAME	Oldsmobile Model 989393
MANUFACTURER	Delco Radio Div., General Motors Corp., Kokomo, Indiana
TYPE SET	Battery Operated 5 Tube-1 Transistor Custom Built Automobile AM Receiver
POWER SUPPLY	12 Volt Storage Battery RATING 2.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 — 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

To preset to high frequency end, put a .070" feeler gauge in slot against the high frequency stop, depress station selector bar and allow the treadle bar arm to run against the feeler gauge. Turn the radio off then back on.

Suggested Alignment Tools: A1 thru A5, A9, A10. . GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A6, A7, A8..... ... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1 mfd to pin 7 (grid) of Converter. Low side to chassis.	262KC (400% Mod.)	High end stop.	DC probe to point (A). Common to chassis.	A1, A2, A3	Adjust for maximum deflection.
2.	"	"	"	"	A4	Adjust for MINIMUM deflection.
	Check setting of Oscillator Core (A5). Rear of core should be 1 5/8" from mounting end of coil form.					
3.	High side thru 82mmf to antenna receptacle. Low side to chassis.	1615KC	"	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	600KC	600KC Signal.	"	A9, A10	"
5.	"	1615KC	1615KC Signal.	"	A7, A8	"
6.	"	1100KC	1100KC Signal.	"		Adjust pointer adjustment until pointer coincides with 1100 on dial.

PUSHBUTTON ADJUSTMENT

1. Tune manually to desired station.
2. Pull pushbutton out, then press in firmly.
3. Repeat for remaining pushbuttons.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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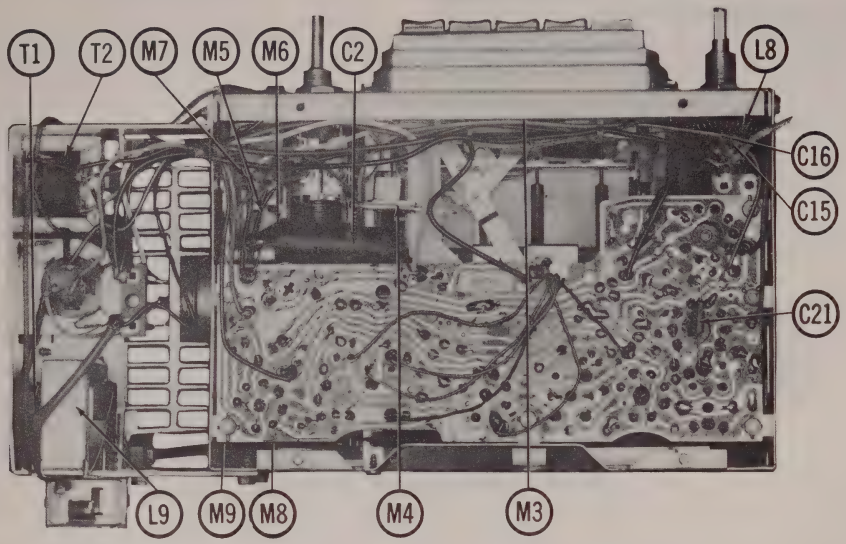
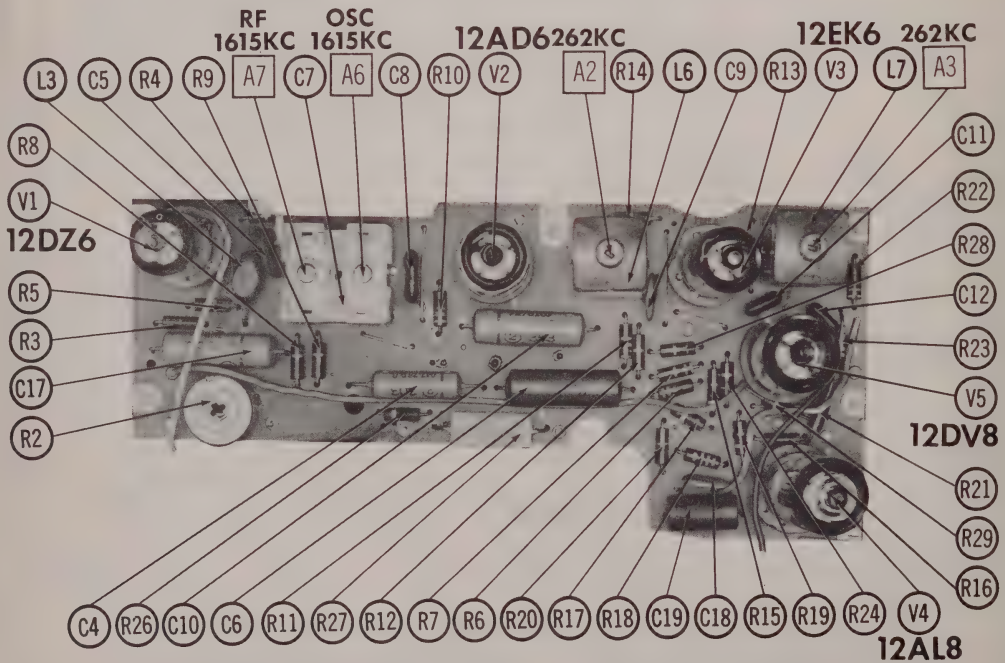
KD930

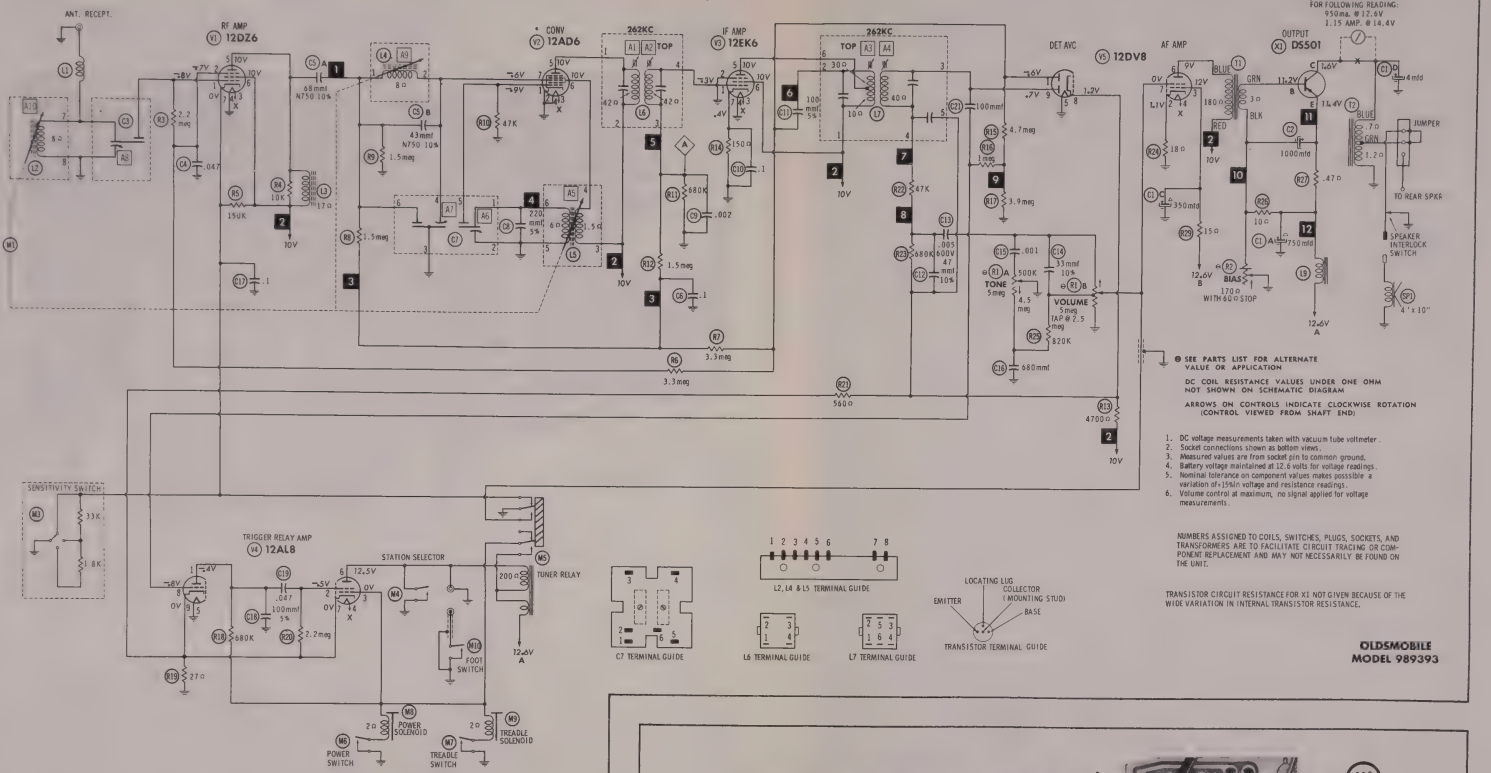
SET 553 FOLDER 10



CHASSIS BOTTOM VIEW



PRINTED BOARD


ANT. RECEPT.
RF AMP
V1 12DZ6
CONV
V2 12AD6
262KC
IF AMP
V3 12EK6
DET AVC
V5 12DV8
AF AMP
OUTPUT
X1 DS501
ADJUST BIAS CONTROL FOR FOLLOWING READING:
950ma. @ 12.6V
1.15 AMP. @ 14.4V
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
TRANSISTOR CIRCUIT RESISTANCE FOR X1 NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
OLDSMOBILE
MODEL 989393
SENSITIVITY SWITCH
TRIGGER RELAY AMP
V4 12AL8
STATION SELECTOR
TUNER RELAY
FOOT SWITCH
POWER SOLENOID
TREADLE SOLENOID
POWER SWITCH
TREADLE SWITCH
SW ON VOLUME CONTROL
+12.6V SOURCE 2.6AMPS
SPARK PLATE
12.6V A SOURCE
12.6V B SOURCE
10V SOURCE
L2, L4 & L5 TERMINAL GUIDE
C7 TERMINAL GUIDE
L6 TERMINAL GUIDE
L7 TERMINAL GUIDE
LOCATING LUG
COLLECTOR (MOUNTING STUD)
EMITTER
BASE
TRANSISTOR TERMINAL GUIDE
SPEAKER INTERLOCK SWITCH
TO REAR SPKR
JUMPER
4" x 10"

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DZ6	8 meg	6 meg	FIL	FIL	75 Ω	60 Ω	0 Ω		
V2	12AD6	47K	0 Ω	FIL	FIL	100 Ω	60 Ω	1.2 meg		
V3	12EK6	500K	0 Ω	FIL	FIL	80 Ω	60 Ω	150 Ω		
V4	12AL8	680K	2.2 meg	2 Ω	FIL	FIL	200 Ω	27 Ω	3.8 meg	27 Ω
V5	12DV8	3 meg	18 Ω	17 Ω	FIL	FIL	240 Ω	0 Ω	590 Ω	730K

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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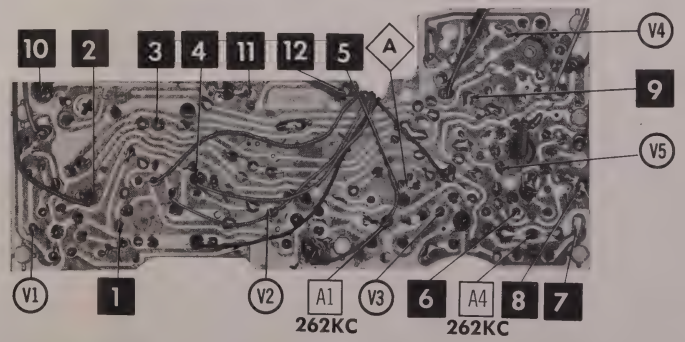


A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12DZ6	V4	Trigger Relay Amp.	12AL8
V2	Converter	12AD6	V5	Det. -AVC-AF Amp.	12DV8
V3	IF Amplifier	12EK6			

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA		NOTES
			RCA PART No.	RAYTHEON PART No.	
X1	DS501	Output	2N176		PNP Note 1.

Note 1. When replacing, apply silicone grease between transistor and heat sink. Tighten mounting screws securely. Check bias adjustment.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲750	16	7273847	AFH4-20-75	D0187		WP401.5		TVLS-4204*
B	■600	16							
C	▲350	16							
D	4	11.5AC							
C2	1000	1	7271557	PRS1130	BR1000-6	QT1-32	PETA120	TD-1000-6	TVA-1104

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3		#7268811						
C4	.047 75V		P288N-047	DD-503	CUB2S47	1DP-2-473	GEM-4147	2TM-S47
C5A	68 N750 10%		N750-DI 68	TCN-68	C10Q68U	CCTN-680	CNO-468	10TCC-Q68
B	43 N750 10%		N750-DI 39	TCN-43	C10Q43U	CCTN-390	CNO-439	10TCC-Q39
C6	.1 75V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C7		#7273693						
C8	220 5%		1469-00022	TCZ-220	22R5T22	CM-19B-221J	CNO-322	MS-322
C9	.002		BPL-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C10	.1 75V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C11	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310
C12	47 10%		1469-000047	TCZ-47	22R5Q47	CM-19B-470K	CNO-447	MS-447
C13	.005 600V		P688N-005	D6-502	CUB6D5	6DP-1-502	GEM-625	6TM-D50
C14	33 10%		1469-000033	TCZ-33	22R5Q33	CM-19B-330K	CNO-433	MS-433
C15	.001		BPL-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	680		DI-680	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C17	.1 75V		P288N-1	DF-104	CUB2P1	1DP-2-104	GEM-201	2TM-P10
C18	100 5%		1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
	PRI.	DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	10Ω Tap@ 3-4Ω	1221428					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	4"x 10"	PM	3-4Ω	7277090	410A2	

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M1	Tuner		Pushbutton, Series F2
M2	Spark Plate	7271564	
M3	Switch	7277029	Sensitivity (Includes Push bar, and 33K & 1800Ω)
M4	Switch	7273705	Station Selector Bar
M5	Relay	7270545	Tuner Operating
M6	Switch	7268030	Power Solenoid
M7	Switch	7268030	Treadle Solenoid
M8	Solenoid & Plunger	1221160	Power
M9	Solenoid & Plunger	1221161	Treadle
M10	Switch	7273680	Foot

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Pointer	1221519	
Pushbutton	7277023	
Knob	580486	Tuning, Volume
Knob	580484	Tone
Knob	580485	Dummy

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire .....Use BELDEN No. 8885
Bonding Strap .....Use BELDEN No. 8661

C19	.047 75V	P288N-047	DD-503	CUB2S47	1DP-2-473	GEM-4147	2TM-S47
C20	.47 100V	P288N-47		CUB2P47	1DP-4-474	GEM-2047	2TM-P47
C21	100 5%	1469-0001	TCZ-100	22R5T1	CM-19B-101J	MCE235	MS-310

Delco Part Number.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5meg*		7276997			† QJ-1390A	■ UE4245-S	Tone
B	5meg 2.5meg Tap							Volume
C	Switch							Power Off-On
R2	175Ω 60Ω Stop		1221422 ①					Bias

* Open at 500K, center of rotation.
① Temperature Compensated.
† "CONCENTRIKIT" Equivalent K-8 Kit with Base Elements and Shafts:
B12-341, P17-031 (Panel)
B18-141X, R1-111 (Rear)
S38 (Bushing)
76-1 (Switch)
■ "STA-LOC" Equivalent: FM56X, RU56T26, OS1000A, IS1500, US41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	2.2meg			
R4	10K			
R5	150K			
R6	3.3meg			
R7	3.3meg			
R8	1.5meg			
R9	1.5meg			
R10	47K			
R11	680K			
R12	1.5meg			
R13	4700Ω			
R14	150Ω			
R15	4.7meg			
R16	1meg			

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R17	3.9meg			
R18	680K			
R19	27Ω			
R20	2.2meg			
R21	560Ω			
R22	47K			
R23	680K			
R24	18Ω			
R25	820K			
R26	10Ω			
R27	.47Ω			Pt. #7270608
R28	56Ω			
R29	15Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	RF Choke(6.5uh)	7255738	BC-565	4610	RTC-8520	T858	
L2	Ant.	1221138					
L3	RF Choke(1.8MH)	7269684	BC-514	4664	RTC-8533	T875	
L4	RF	1221136					
L5	Osc.	1221151					
L6	Input IF	1221257	BC-344	13-PH1	RTC-8644	T655	
L7	Output IF	1221253	BC-424				
L8	Hash Choke(1.4uh)	7241708					

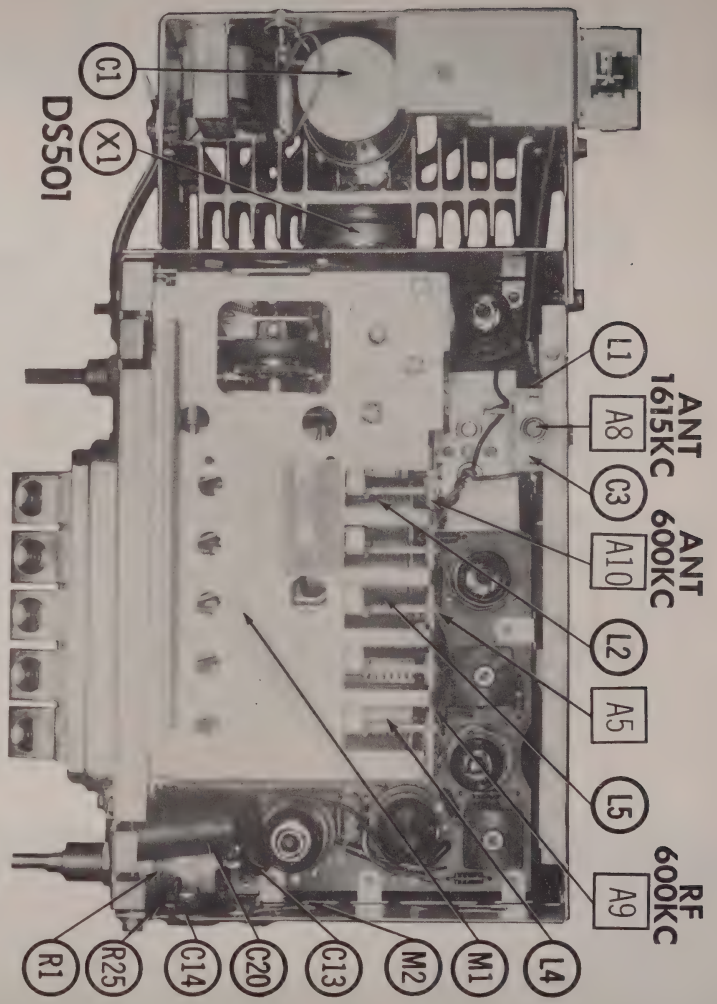
FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L9	1A	.7Ω	.01HY	7274342		TC-2			

TRANSFORMER (DRIVER)

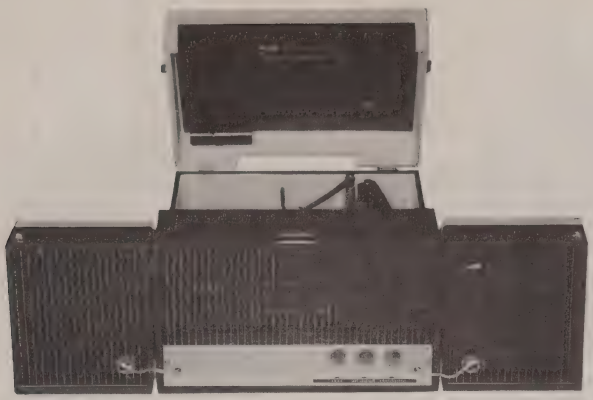
ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA DELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	6.8	1	1221590		TA-48			

CHASSIS—TOP VIEW



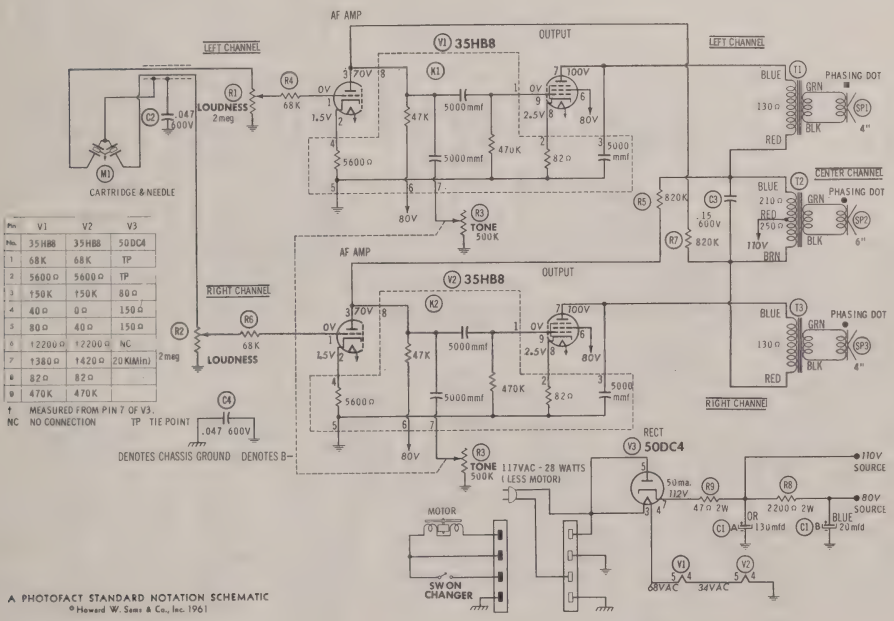
PHOTOFACT® Folder

PHILCO MODELS J-1425BE, J-1425GY



TRADE NAME	Philco Models J-1425BE, J-1425GY (Code 121)
MANUFACTURER	Philco Corp., Tioga & C Streets, Philadelphia, Pa.
TYPE SET	AC Operated 3 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles RATING 28 Watts, .28 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER M44 – SEE SIMILAR V-M 959 – PHOTOFACT SET 396 FOLDER 13 OR RECORD CHANGER MANUAL RC-11



Pin No.	V1 35HB8	V2 35HB8	V3 50DC4
1	68K	68K	TP
2	5600Ω	5600Ω	TP
3	†50K	†50K	80Ω
4	40Ω	0Ω	150Ω
5	80Ω	40Ω	150Ω
6	†2200Ω	†2200Ω	NC
7	†380Ω	†420Ω	20 K Min)
8	82Ω	82Ω	
9	470K	470K	

† MEASURED FROM PIN 7 OF V3.
NC NO CONNECTION TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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PHILCO MODELS J-1425BE, J-1425GY
PHILCO MODELS J-1425BE, J-1425GY
SET 553 FOLDER 11

PARTS LIST AND DESCRIPTIONS

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Left Channel AF Amp. - Left Channel Output	35HB8	V2	Right Channel AF Amp. - Right Channel Output	35HB8
			V3	Rectifier	50DC4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	130	150	30-2605-1	PR3-030	BBRD0183.7	QT3-6	TCT3117	TDLD-14	TVA-3455
B	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C3	.15 600V		P688N-15		CUB6P15	6DP-5-154	GEM-6015	6TM-P15
C4	.047 600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg	½	33-5572-46	B-76	A47-2meg-Z	Q13-139	U55	Loudness, Left Channel
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	2meg	½	33-5572-46	B-76	A47-2meg-Z	Q13-139	U55	Loudness, Right Channel
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	33-5573-55	B-60	AD47-500K-Z		FA55A	Tone, Left Channel
B	500K	½		SR-60	Not Req.		RU55A	Tone, Right Channel
C	Shaft			Not Req.	FS-3		CS3500	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	68K				R7	820K			
R5	820K				R8	2200Ω 2W			
R6	68K				R9	47Ω 2W			

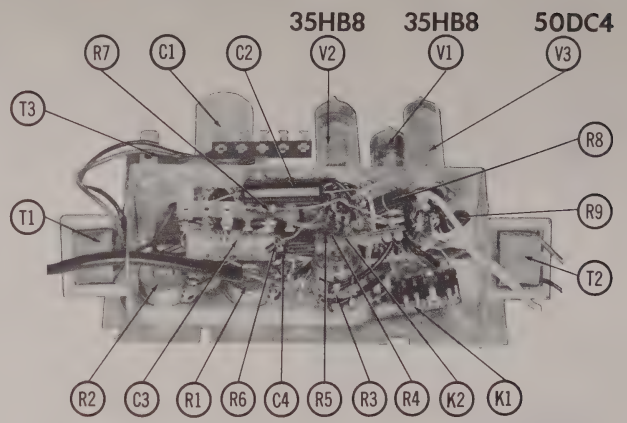
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K1	Audio Network	(3) .005mfd, 82Ω, 5600Ω, 47K, 470K	30-6538-1	
K2	Audio Network	(3) .005mfd, 82Ω, 5600Ω, 47K, 470K	30-6538-1	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2000Ω	6-8Ω	32-8960-1				S-62X	
T2	3000ΩCT	3-4Ω	32-8961-1				S-62X	
T3	2000Ω	6-8Ω	32-8960-1				S-62X	

CHASSIS—BOTTOM VIEW



SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	6-8Ω	36-1673-19	4A07Z8	
SP2	6"	PM	3-4Ω	36-1680-5	6A15	
SP3	4"	PM	6-8Ω	36-1673-19	4A07Z8	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	PHILCO PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	325-8052†	325-8253 * (LP)	70-TS-TB	N8-7 *	96T	Not Req.	12THA-S	Not Req.	† Includes Needles
		325-8143 * (78RPM)		N8-3 *					

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	424-8175	
Handle	54-5211-21	
Cabinet	51-0148-2	Beige, Model J-1425BE
Cabinet	51-0148-1	Gray, Model J-1425GY

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

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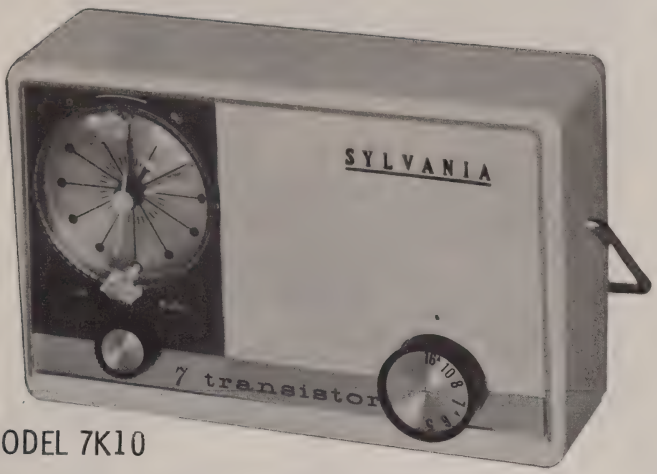

MODEL 7K10

SYLVANIA MODELS
7K10, 7K11 (Ch. 679-1)

TRADE NAME	Sylvania Models 7K10, 7K11 (Ch. 679-1)
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700 Ellicott St., Batavia, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver With Clock
POWER SUPPLY	6 Volts DC (Radio) RATING 12 MA @ 6 Volts DC (No Signal, Min. Volume)
	1.5 Volts DC (Clock) 15 MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	540 – 1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A5.....GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1650KC	"	"	A4	"
3.	"	600KC	600KC	"	A5	Adjust for maximum output while rocking tuning gang.
4.	"	1450KC	1450KC Signal.	"	A6	Adjust for maximum output. Repeat Steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF646

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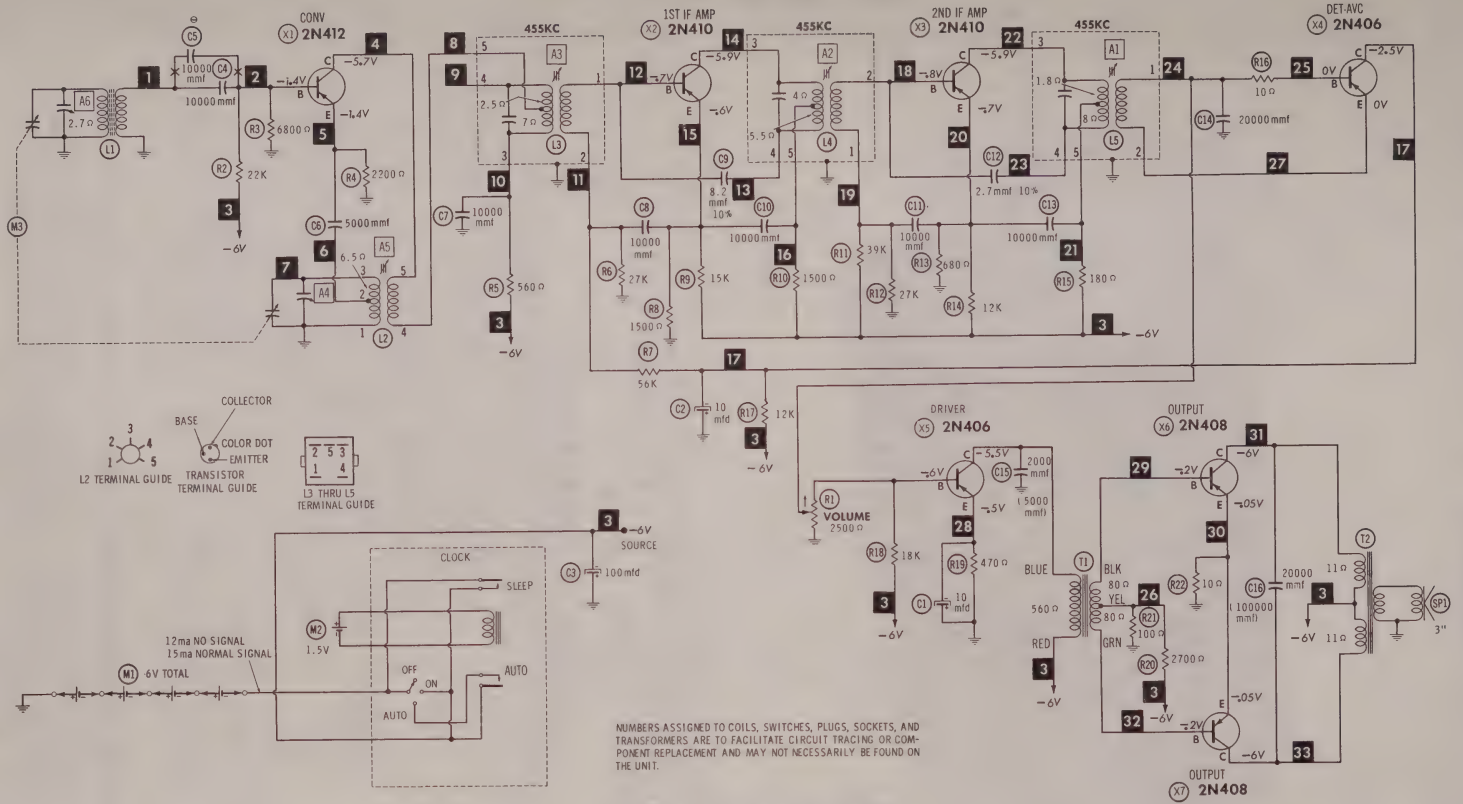
SET 553 FOLDER 12



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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SYLVANIA MODELS
7K10, 7K11 (Ch. 679-1)

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N412	Converter	2N412	2N486	2N412	PNP
X2	2N410	1st IF Amplifier	2N410	2N483	2N410	PNP
X3	2N410	2nd IF Amplifier	2N410	2N483	2N410	PNP
X4	2N406	Det. -AVC	2N406	2N362	2N406	PNP
X5	2N406	Driver	2N406	2N362	2N406	PNP
X6	2N408	Output	2N270	2N633	2N408	PNP
X7	2N408	Output	2N270	2N633	2N408	PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	10	10	161-1078	PTT39	NLW10-10	MT1-5	TT12X10	MLV10-10	TE-1114
C2	10	10	161-1078	PTT39	NLW10-10	MT1-5	TT12X10	MLV10-10	TE-1114
C3	100	10	161-1070	PTT46	NLW100-10	MT1-19	TT15X100	MLV100-10	TE-1119. 3

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C5	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C7	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C8	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C9	8. 2 10%		NPO-SI 8. 2		C10V82C			10TCC-V82
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C12	2. 7 10%		NPO-SI 3. 0		C10V3C			10TCC-V27
C13	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C14	20000		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C15	2000	(5000) †	BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C16	20000	(100000) †	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20

Note 1. Not used in some versions.
† Alternate Value.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	2500Ω	1/4	153-0263					Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	22K				R13	680Ω			
R3	6800Ω				R14	12K			
R4	2200Ω				R15	180Ω			
R5	560Ω				R16	10Ω			
R6	27K				R17	12K			
R7	56K				R18	18K			
R8	1500Ω				R19	470Ω			
R9	15K				R20	2700Ω			
R10	1500Ω				R21	100Ω			
R11	39K				R22	10Ω			
R12	27K								

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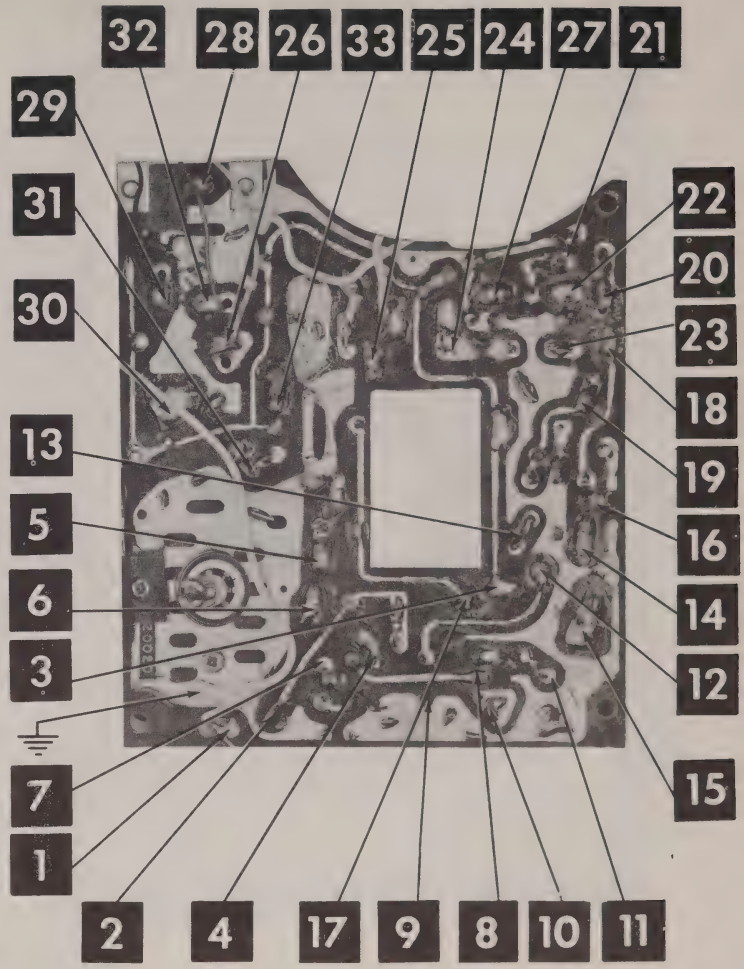


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Loopstick	581-0033					
L2	Osc.	113-0092					
L3	1st IF	121-0121					
L4	2nd IF	122-0046					
L5	3rd IF	122-0047					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1	143-0107	A-2759	TA-28①	TR-4①		① Use Original Frame

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	2000Ω CT	3-4Ω	143-0108		TA-20			

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	3"	PM	3-4Ω	539-0303		

BATTERIES

ITEM No.	VOLTAGE	SYLVANIA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V			930*		1015*		M-15*	* 4 Required (Radio)
M2	1.5V			930♦		1015♦		M-15♦	♦ 1 Required (Clock)

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M3	Tuning Cap.	170-0059	2 Gang

CABINETS & CABINET PARTS

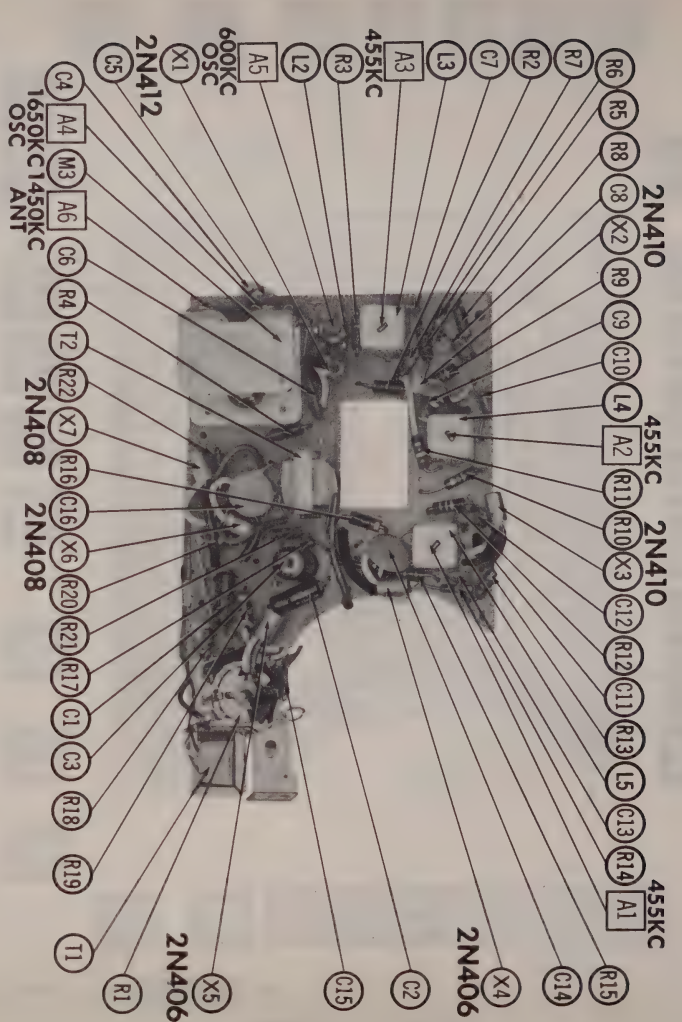
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Crystal	717-0016	Clock, Model 7K11
Knob	740-0441	Tuning, Model 7K10
Knob	740-0445	Tuning, Model 7K11
Knob	740-0442	Volume, Model 7K10
Knob	740-0444	Volume, Model 7K11
Knob	740-0443	Clock
Cabinet	822-0131	Includes Crystal, Front, Model 7K10
Cabinet	822-0132	Rear, Model 7K10
Case	813-0159	Leather, Model 7K11
Handle	818-0076	Model 7K10

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT® Folder

**SYMPHONIC
MODEL 1723, 1744**

SYMPHONIC
MODEL 1723, 1744

MODEL 1744

SYMPHONIC
MODEL 1723, 1744

TRADE NAME	Symphonic Models 1723, 1744
MANUFACTURER	Symphonic Radio & Electronic Corp., 235 Jersey Ave., New Brunswick, N. J.
TYPE SET	AC Operated 5 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 — 120 Volts AC, 60 Cycles RATING 57 Watts, .55 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 1723 — SEE SIMILAR V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

FOR SERVICE INFORMATION ON RECORD CHANGER USED IN MODEL 1744 — SEE SIMILAR TELEFUNKEN TW560 — PHOTOFACT SET 371 FOLDER 12 OR RECORD CHANGER MANUAL RC-10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 553 FOLDER 13

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7A
V2	Channel 1 Output	25C5
V3	Channel 2 Output	25C5
V4	Center Channel Output	25C5
V5	Center Channel Output	25C5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYMPHONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	80	150	CE-150	PRS3800	BBRQ0789.5	QT4-2	WQ640	CDBQ-4422	TVA-4584
B	40	150		PRS1440					
C	20	150							
D	20	150							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C3	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C5	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	1.5 200V		P282Z-1.5		WMF2W1P5E			
C7	1.5 200V		P282Z-1.5		WMF2W1P5E			
C8	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

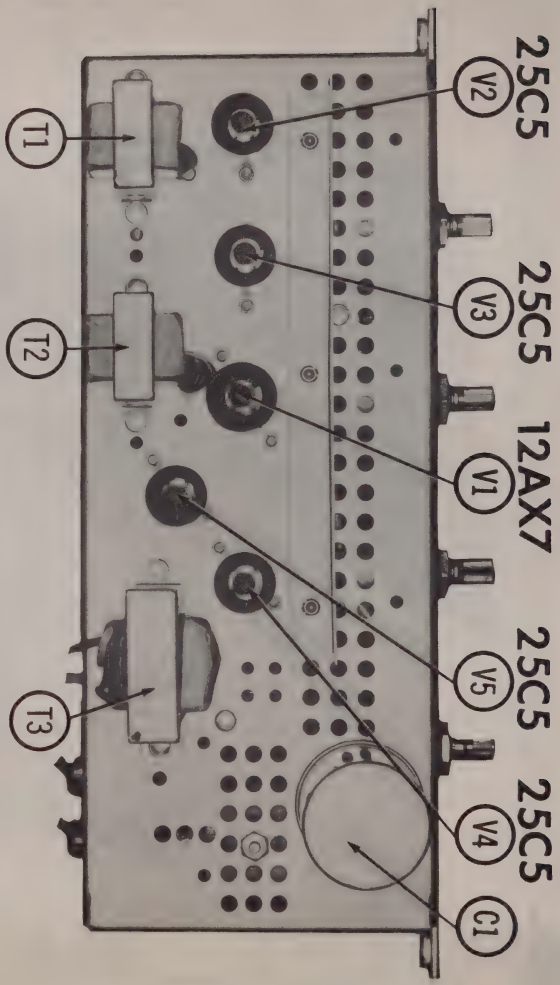
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYMPHONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg 900K Tap	1/2	VC-331					Loudness, Channel 1
B	3meg 900K Tap	1/2						Loudness, Channel 2
R2A	500K	1/2	VC-270	B-60	AD47-500K-Z		FA55A	Treble, Channel 1
B	500K	1/2		SR-60	Not Req.		RU55A	Treble, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	3meg	1/2	VC-269	B-85			FA36A	Bass, Channel 1
B	3meg	1/2		SR-85			RU36A	Bass, Channel 2
C	Shaft			Not Req.			CS3500	
R4A	4meg	1/2	VC-330	B-86	A47-4meg-S	B11-240	U67	Balance
B	Shaft			Not Req.	KSS-3	SK1	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R5	6.8meg			
R6	100K			
R7	82Ω 1W			
R8	100K			
R9	6.8meg			
R10	82Ω 1W			
R11	1000Ω 1W			
R12	220Ω 5W	PW5-220	5W-SQ-220	
R13	47Ω 2W			
R14	47Ω 2W			
R15	50Ω 5W	PW5-50	5W-SQ-50	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYMPHONIC PART No.	REPLACEMENT DATA
K1 K2 K3	Tone Comp. Loudness Comp. Audio Coupling	(2) .002mfd, (2) 100K (2) .002mfd, (2) 100K (2) .01mfd (2) 1000Ω, (2) 220K, (2) 470K	PC-4747 PC-4747 PC-3932-1	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYMPHONIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2900Ω	3-4Ω	TR-199	A-3025	A-3332	26S58	S-12Z	
T2	2900Ω	3-4Ω	TR-199	A-3025	A-3332	26S58	S-12Z	
T3	5300Ω CT	3-4Ω	TR-201	A-2900	A-3856	24S04	S-52X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYMPHONIC PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	SP-600	6A31	* Model 1744 Only. SP2 and SP5 may use Part #SP-420. † Model 1723 Only.
SP2	3½"	PM	3-4Ω	SP-423 *	3A15TZ3.2	
SP3	6"x 9"	PM	3-4Ω	SP-619 *	69A2	
SP4	6"	PM	3-4Ω	SP-600	6A31	
SP5	3½"	PM	3-4Ω	SP-423 *	3A15TZ3.2	
	6"x 9"	PM	3-4Ω	SP-625 †		

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT (Measured)	SYMPHONIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	
M1	.095A	SR-112 *	1N1763 †	100 *	* Silicon † Selenium

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	SYMPHONIC PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	T20/2	A20/2 *							Model 1744 Only
	ST-20	ST-40(LP)* ST-40(ST)*							Model 1723 Only

CABINETS & CABINET PARTS

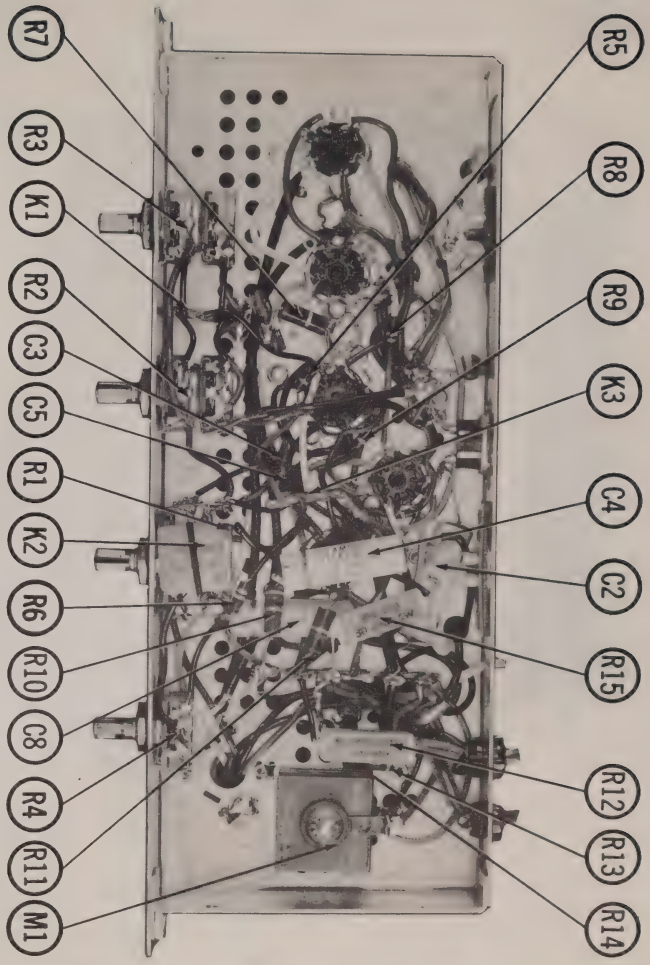
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

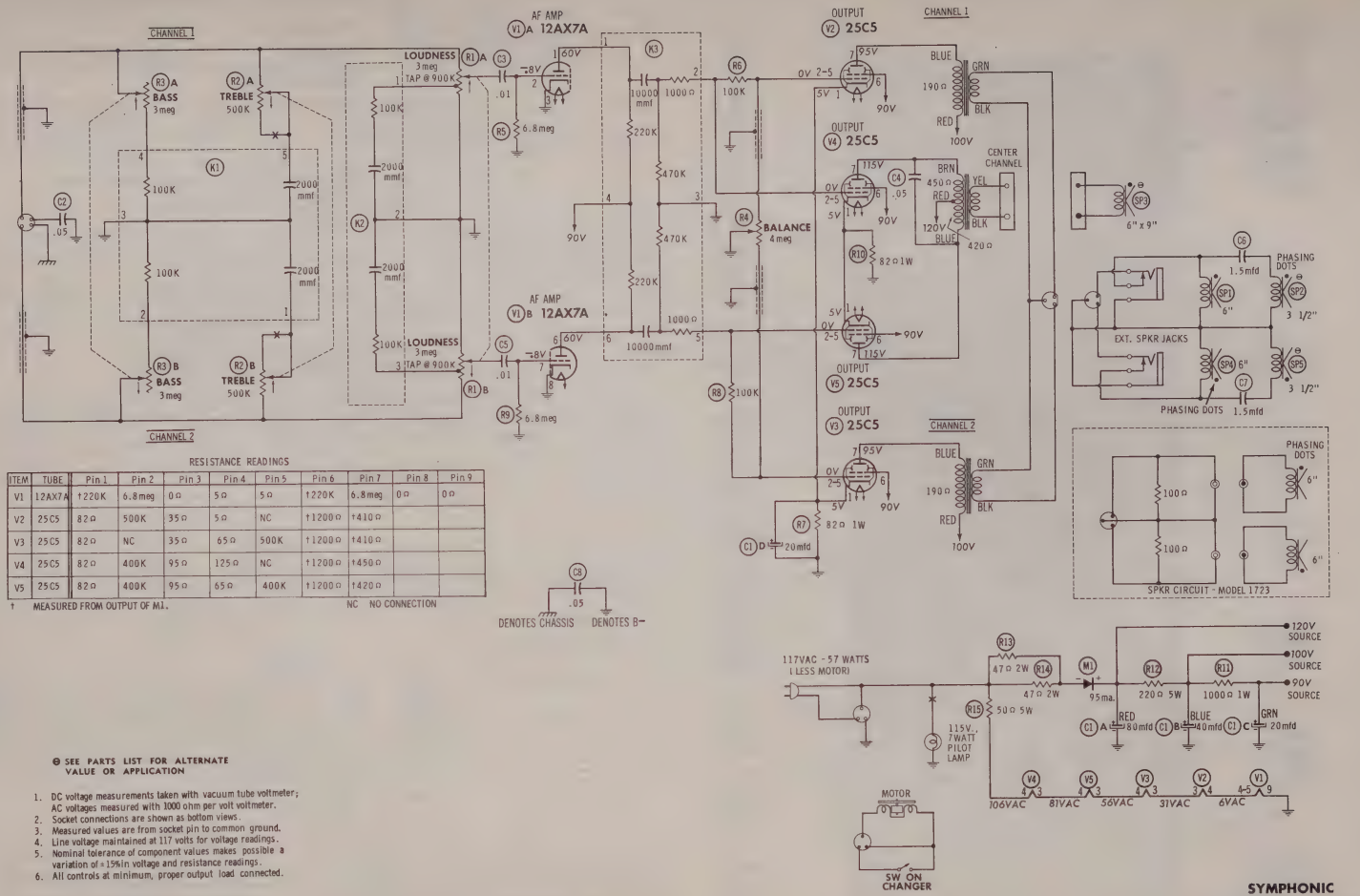
NAME	PART NO.	DESCRIPTION
Knob Knob	KN-424 KN-323	Model 1723 Model 1744

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†220K	6.8meg	0Ω	5Ω	5Ω	†220K	6.8meg	0Ω	0Ω
V2	25C5	82Ω	500K	35Ω	5Ω	NC	†1200Ω	†410Ω		
V3	25C5	82Ω	NC	35Ω	65Ω	500K	†1200Ω	†410Ω		
V4	25C5	82Ω	400K	95Ω	125Ω	NC	†1200Ω	†450Ω		
V5	25C5	82Ω	400K	95Ω	65Ω	400K	†1200Ω	†420Ω		

† MEASURED FROM OUTPUT OF M1. NC NO CONNECTION

DENOTES CHASSIS DENOTES B−

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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SYMPHONIC MODEL 1723, 1744

PHOTOFACT® Folder with CIRCUITRACE®

**TOSHIBA MODELS
3WX, 7TP-303**

TOSHIBA MODELS
3WX, 7TP-303

TOSHIBA MODELS
3WX, 7TP-303

TRADE NAME	Toshiba Models 7TP-303, 3WX
IMPORTER	Transistor World Corp., 52 Broadway, New York 4, N. Y.
TYPE SET	Battery Operated Transistorized AM Receiver (Model 3WX is Speaker Cabinet)
POWER SUPPLY	4.5 Volts DC — RATING 10MA@ 4.5 Volts DC (No Signal, Min. Volume)
TUNING RANGE	BROADCAST 540-1600KC — 15MA@ 4.5 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A5 .... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A6 ..... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

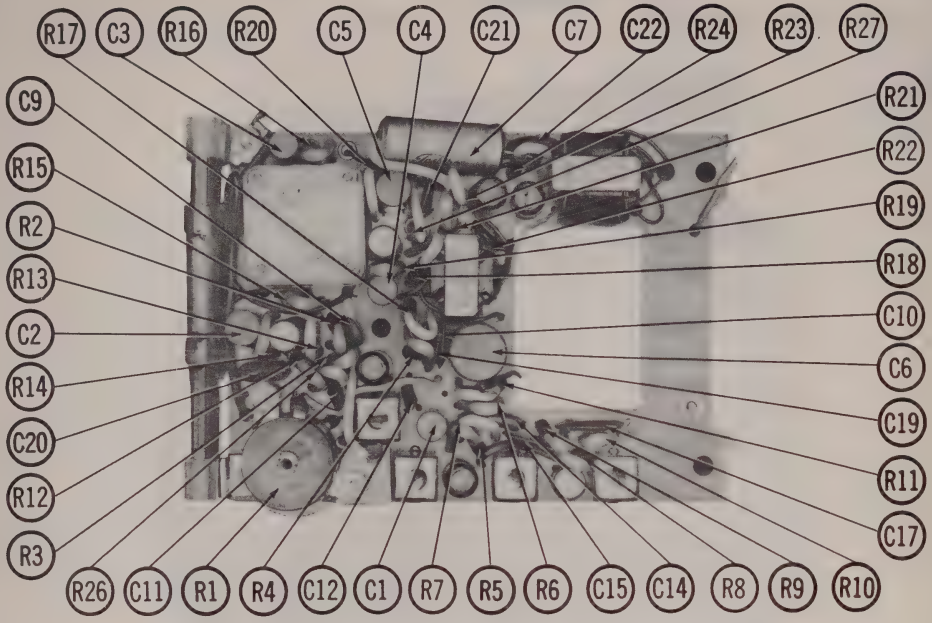
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400~ Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1600KC	1600KC	"	A4	"
3.	"	600KC	600KC	"	A5	"
4.	"	1400KC	1400KC	"	A6	Adjust for maximum output. Repeat steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

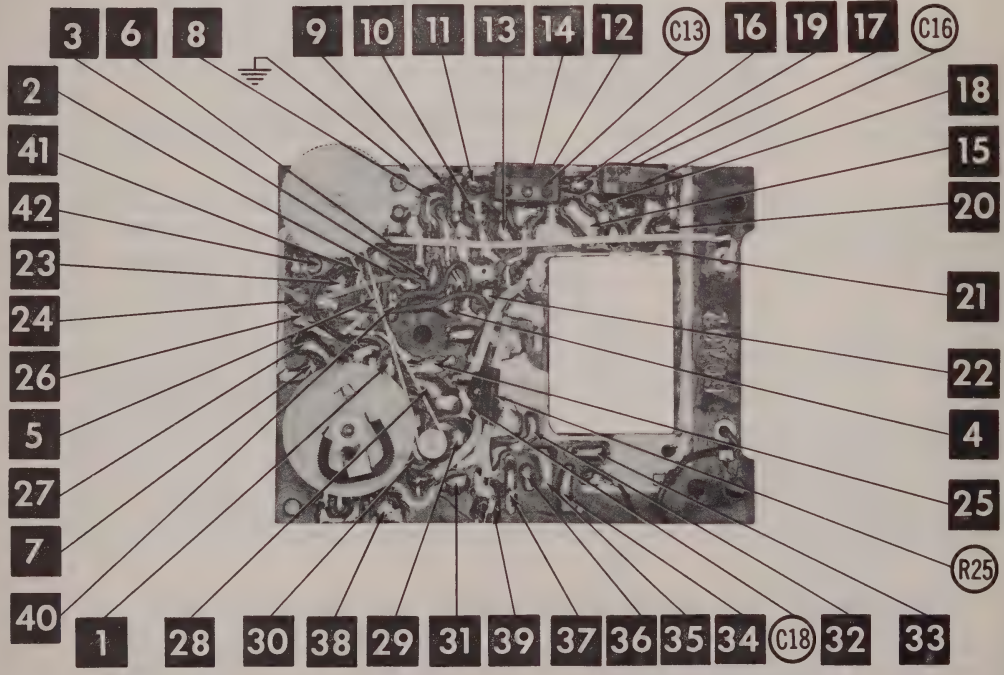
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KF721

SET 553 FOLDER 14

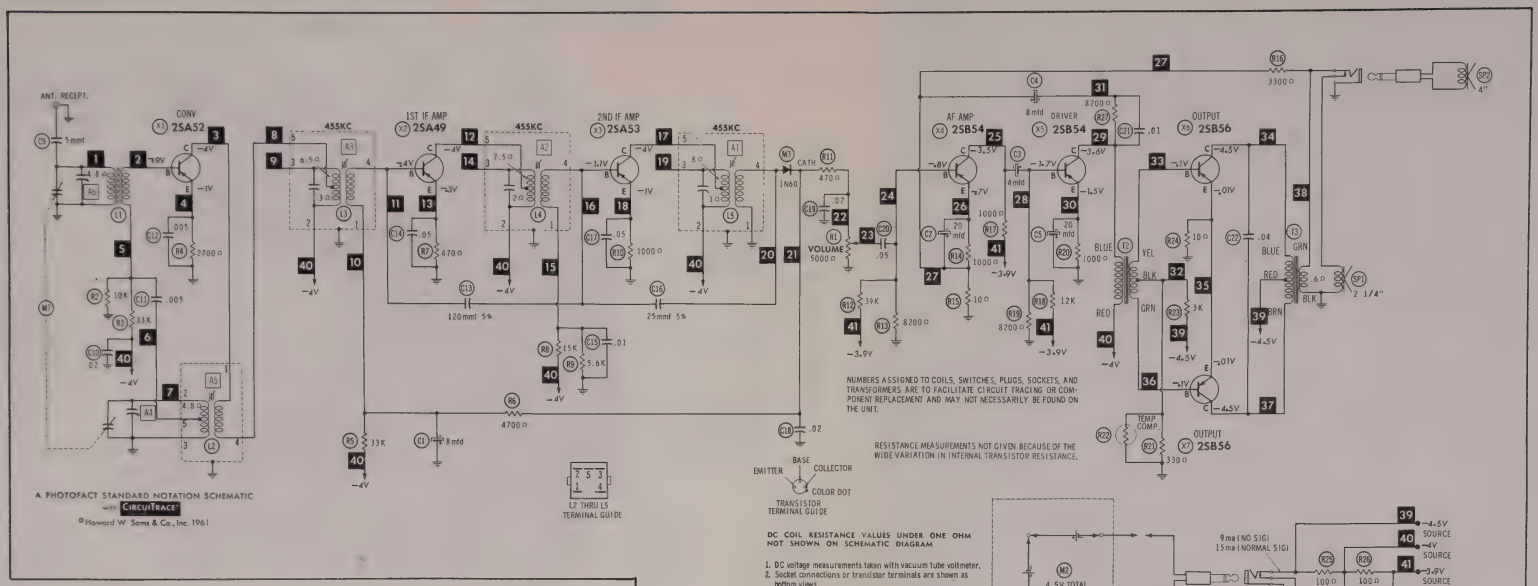


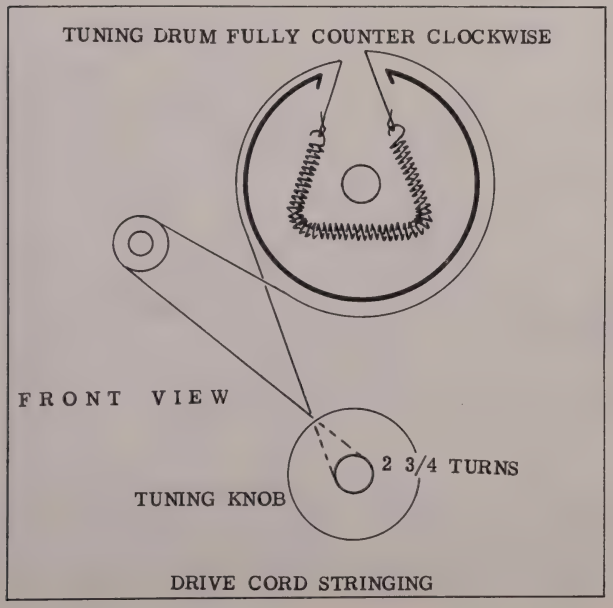
CHASSIS TOP VIEW-CAPACITOR & RESISTOR IDENT.



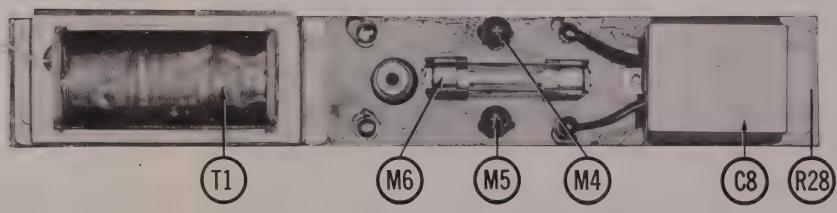
A Howard W. Sams CIRCUITRACE® Photo

PRINTED BOARD





DRIVE CORD STRINGING



POWER CHASSIS

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	2SA52	Converter				PNP
X2	2SA49	1st IF Amplifier				PNP
X3	2SA53	2nd IF Amplifier				PNP
X4	2SB54	AF Amplifier	2N406			PNP
X5	2SB54	Driver	2N406			PNP
X6	2SB56	Output	2N408			PNP
X7	2SB56	Output	2N408			PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: TOSHIBA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	8	5		PTT22	NLW8-10	MT1-5	TT6X8	MLV10-6	TE-1086
C2	20	3		PTT8	NLW20-6	MT1-10	TT15X20	MLV20-12	TE-1054
C3	4	10		PTT37	NLW4-15	MT1-3	TT12X5	MLV5-12	TE-1123
C4	8	5		PTT22	NLW8-10	MT1-5	TT6X8	MLV10-6	TE-1086
C5	20	3		PTT8	NLW20-6	MT1-10	TT15X20	MLV20-12	TE-1054
C6	60	6		BCD6050	NLW75-10	MT1-18	TT6X60	MLV50-6	TE-1101
C7	60	6		PTT29	NLW75-10	MT1-18	TT6X60	MLV50-6	TE-1101
C8	300	6		PTT33	NLW300-6	MT1-24	TC1502	MLV200-6	TE-1106

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C9	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C10	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C11	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C12	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C13	120 5%		1469-00012	TCZ-120	22R-5T12	CM-19B-121J	CNO-312	MS-312
C14	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C15	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C16	25 5%		1469-000025	TCZ-25	22R5Q25	CM-19B-250J	CNO-425	MS-425
C17	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C18	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C19	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C20	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C21	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C22	.04							

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TOSHIBA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	5000Ω	1/4						Volume and Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R2	10K			
R3	33K			
R4	2700Ω			
R5	33K			
R6	4700Ω			
R7	470Ω			
R8	15K			
R9	5600Ω			
R10	1000Ω			
R11	470Ω			
R12	39K			
R13	8200Ω			
R14	1000Ω			
R15	10Ω			

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN TV PART No.	REMARKS
R16	3300Ω			
R17	1000Ω			
R18	12K			
R19	8200Ω			
R20	1000Ω			
R21	330Ω			
R22	Temp. Comp.			
R23	3000Ω			
R24	10Ω			
R25	100Ω			
R26	100Ω			
R27	8200Ω			
R28	1000Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: TOSHIBA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	NOTES
L1	Loopstick						
L2	Osc.						
L3	1st IF						
L4	2nd IF						
L5	3rd IF						

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	REPLACEMENT DATA: TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V @ .010A	8VCT @ .015A DC							

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1.2	1	0428B					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	TOSHIBA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	250Ω CT	6-8Ω	0498A					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TOSHIBA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	2304B	22A06Z8	* Used in Speaker Box.
SP2	4"	PM	3-4Ω	50140 *	4A1	

BATTERIES

ITEM No.	VOLTAGE	TOSHIBA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	UM-3		930		1015		M-15R	3 Required
M2	1.5V	UM-1		130		635		M-14R	3 Required (Part of Aux Speaker)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		TOSHIBA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M3	1N60			1N60	1N60	Detector

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TOSHIBA PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M4	.015A		1N1763	2F4	SR200	
M5	.015A		1N1763	2F4	SR200	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TOSHIBA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M6	3AG	1/4A 125V			312.500 (3AG 1/4A 125V)		AGC 1/2	

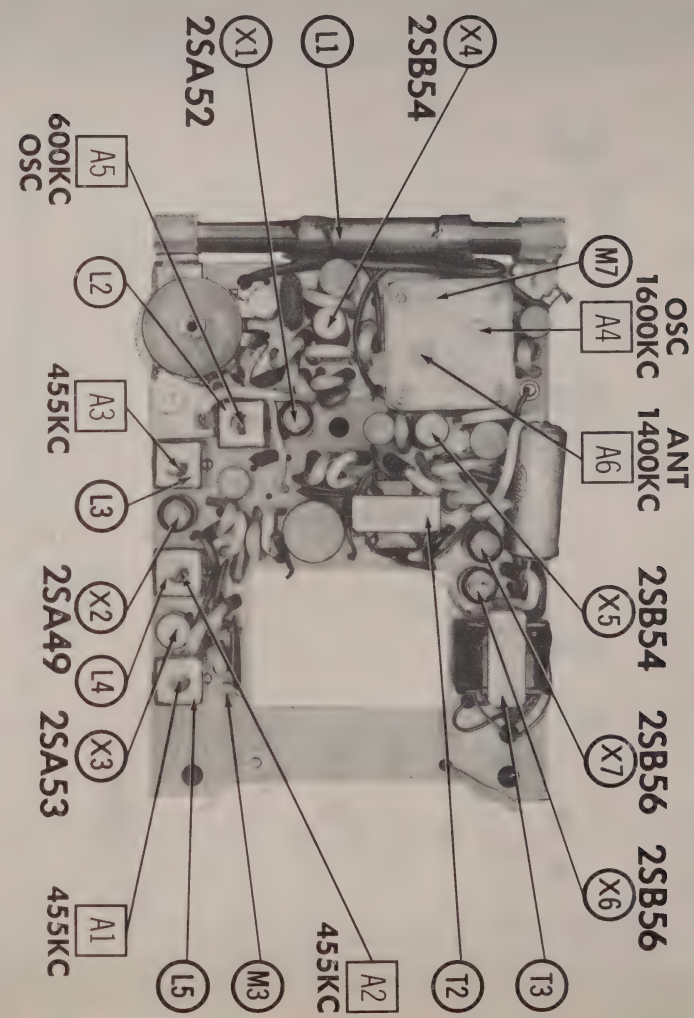
MISCELLANEOUS

ITEM No.	PART NAME	TOSHIBA PART No.	NOTES
M7	Tuning Cap		2 Gang

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

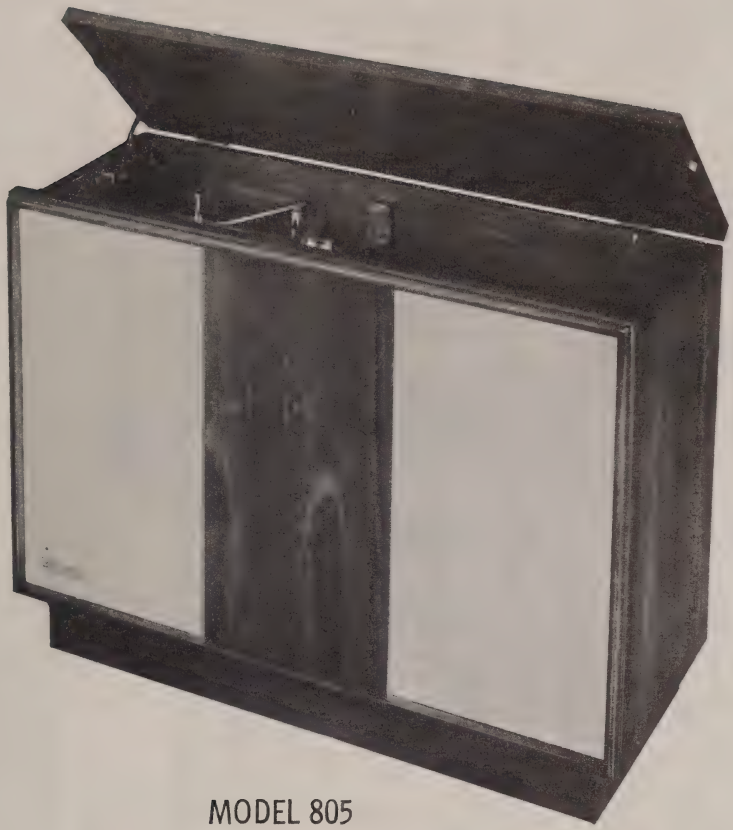
CHASSIS—TOP VIEW



PHOTOFACT® Folder

V-M
MODELS 803, 805

V-M
MODELS 803, 805



MODEL 805

V-M
MODELS 803, 805

TRADE NAME	V-M Models 803, 805
MANUFACTURER	V-M Corp., 375 W. Main Street, Benton Harbor, Michigan
TYPE SET	AC Operated 5 Tube Stereo Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 70 Watts, .66 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18
OR RECORD CHANGER MANUAL RC-12

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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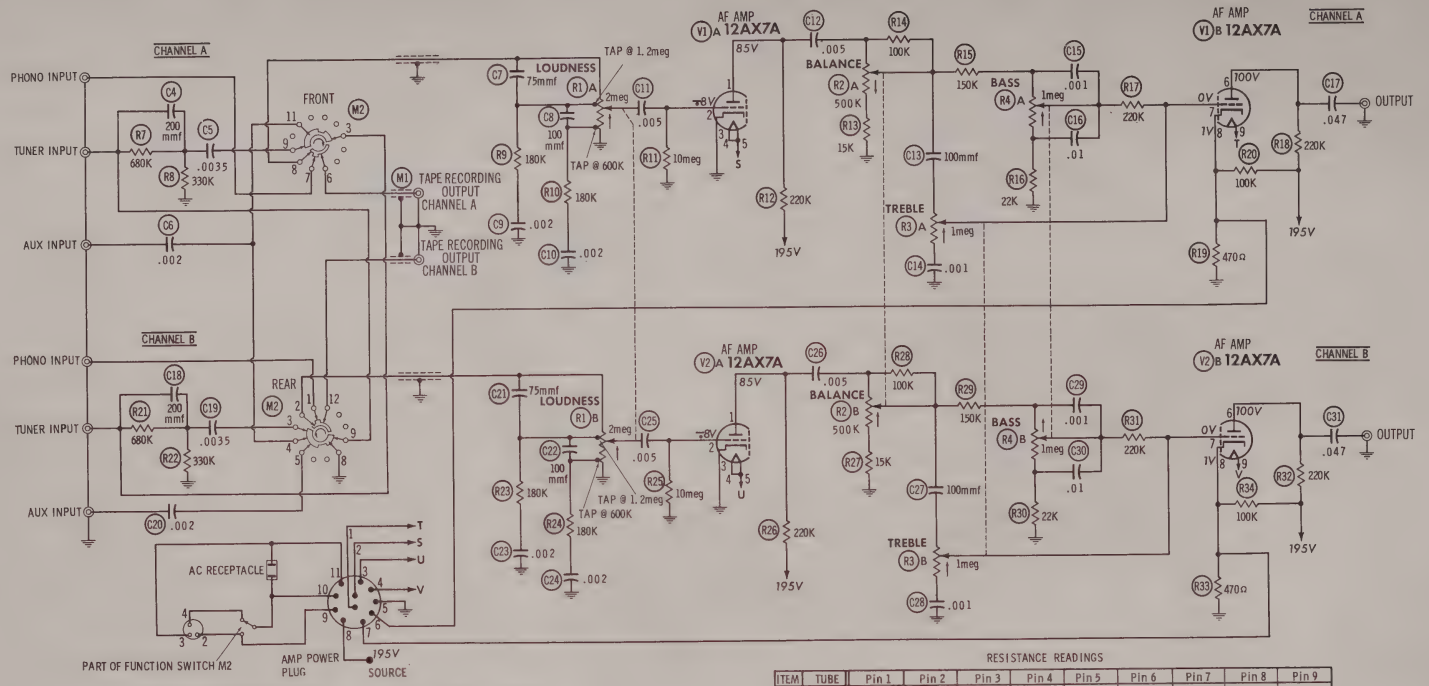

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7A	†230K	10meg	0Ω	FIL	FIL	†230K	240K	470Ω	FIL
V2	12AX7A	†230K	10meg	0Ω	FIL	FIL	†230K	240K	470Ω	FIL

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5. NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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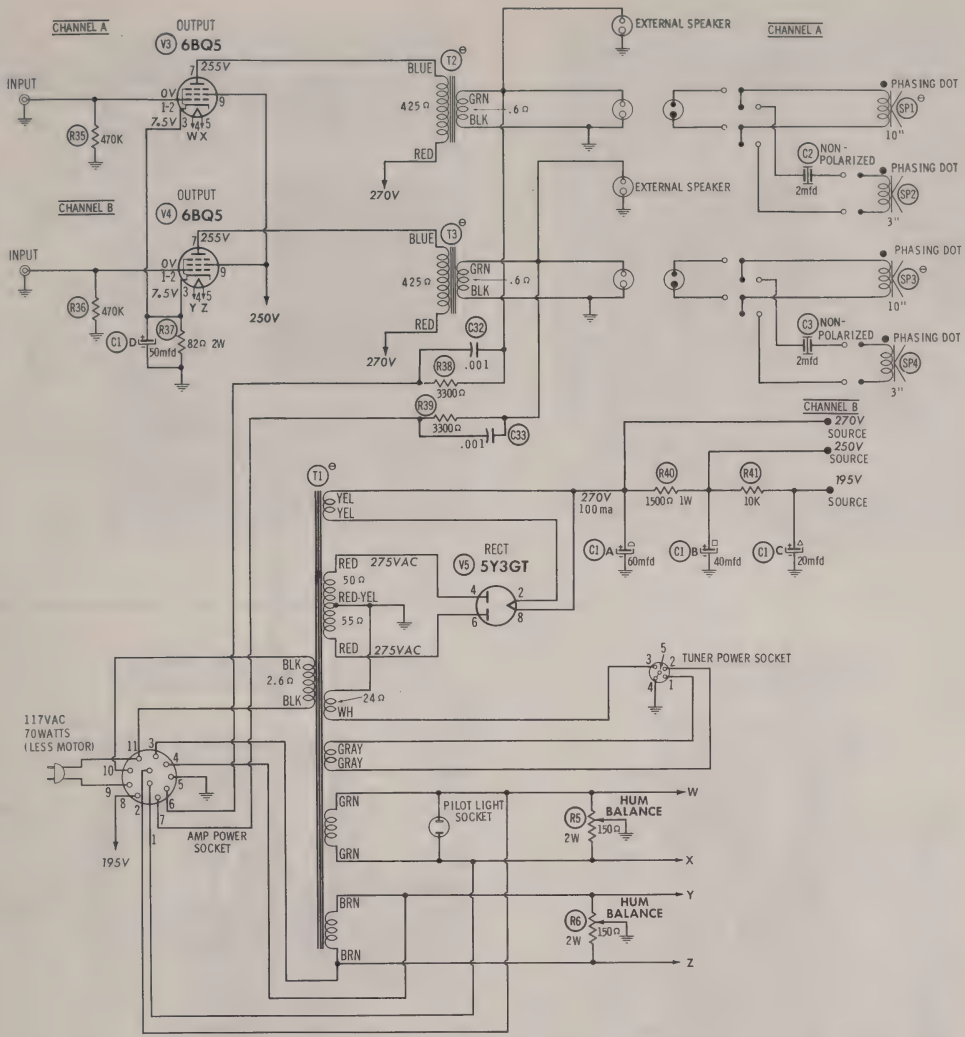
V-M
MODELS 803, 805

PREAMP SCHEMATIC



RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V3	6BQ5	NC	470K	82Ω	FIL	FIL	NC	†425Ω	NC	†1500Ω
V4	6BQ5	NC	470K	82Ω	FIL	FIL	NC	†425Ω	NC	†1500Ω
V5	5Y3GT	NC	¶ 60K	NC	50Ω	TP	55Ω	NC	¶ 60K	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5. NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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AMP SCHEMATIC

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	Channel A AF Amp.	12AX7A
V2	Channel B AF Amp.	12AX7A
V3	Channel A Output	6BQ5
V4	Channel B Output	6BQ5
V5	Rectifier	5Y3GT

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲60	450	12172	AFH4-94-90	D0783. 8	XC4-82	FP378	TMQ-4565	TVL-4739. 6
B	■40	450					TC29		
C	▲20	450							
D	50	25							
C2	2	25NP	12130	PRS7300	BR4-150	NPQT-1	TCN502		TVANS-1202*
C3	2	25NP	12130	PRS7300	BR4-150	NPQT-1	TCN502		TVANS-1202*

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	200		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C5	.0035		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C6	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C7	75			DD-750	L10Q75	CCD-750	GP475	10TS-T75
C8	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C9	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C10	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C11	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C12	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C13	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C16	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C18	200		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C19	.0035		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C20	.002		BPD-002	DD-203	BYA10D2	CCD-202	B-220	5HK-D20
C21	75			DD-750	L10T75	CCD-750	GP475	10TS-T75
C22	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C23	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C24	.002		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C25	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C26	.005		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	100		DI-100	DD-101	L10T1	CCD-101	GP310	10TS-T10
C28	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C29	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C30	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C31	.047 400V		P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C32	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C33	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg*	1/2	12398	BT-175				Loudness, Channel A
B	2meg*	1/2		STR-175				Loudness, Channel B
R2A	500K	1/2	12399	B-59	AD47-500K-B		FA55L	Balance, Channel A
B	500K	1/2		SR-59	Not Req.		RU55L	Balance, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg	1/2	12400	B-70	AD47-1meg-Z		FA16A	Treble, Channel A
B	1meg	1/2		SR-70	Not Req.		RU16A	Treble, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	1meg	1/2	12401	B-70	AD47-1meg-Z		FA16A	Bass, Channel A
B	1meg	1/2		SR-70	Not Req.		RU16A	Bass, Channel B
C	Shaft			Not Req.	KSS-3		CS3500	
R5	150Ω	2(WW)	12361				FL200P	Hum Balance, Channel A
R6	150Ω	2(WW)	12361				FL200P	Hum Balance, Channel B

* Taps @ 600K & 1.2meg.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS	ITEM No.	RATING	REPLACEMENT DATA IRC PART No.	WORKMAN TV PART No.	REMARKS
R7	680K				R15	150K			
R8	330K				R16	22K			
R9	180K				R17	220K			
R10	180K				R18	220K			
R11	10meg				R19	470Ω			
R12	220K				R20	100K			
R13	15K				R21	680K			
R14	100K				R22	330K			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R23	180K			
R24	180K			
R25	10meg			
R26	220K			
R27	15K			
R28	100K			
R29	150K			
R30	22K			
R31	220K			
R32	220K			

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS
R33	470Ω			
R34	100K			
R35	470K			
R36	470K			
R37	820Ω 2W			
R38	3300Ω			
R39	3300Ω			
R40	1500Ω 1W			
R41	10K			

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	V-M PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V Ⓐ .66A	540VCT Ⓐ .100A DC	120VAC (Not Used)	12665-3 ①					① Alternate Part # 12665
	SEC. 3	SEC. 4	SEC. 5						
	5V Ⓐ 2A	6.3V (Not Used)	6.3V Ⓐ 1A						
	SEC. 6								
	6.3V Ⓐ .9A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	V-M PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	3100Ω	1-2Ω	12666-2 ①	A-2935	A-3824	24S14	S-5X	① Alternate Part #12666
T3	3100Ω	1-2Ω	12666-2 ①	A-2935	A-3824	24S14	S-5X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	V-M PART No.	QUAM PART No.	
SP1	10"	PM	3-4Ω	24071-2*	10A31	* Model 805 Only
SP2	3"	PM	3-4Ω	21226-1	3A15TZ4	† Used for SP1 and SP3 in Model 803

SPEAKER (cont)

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	V-M PART No.	QUAM PART No.	
SP3	10"	PM	3-4Ω	24071-2*	10A31	
SP4	3"	PM	3-4Ω	21226-1	3A15TZ4	
	8"	PM	3-4Ω	24082-2 †	8A21	

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	V-M PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M1	23960A	24043 * (LP)	17	Not Req.	26S	S1-1 *	8TA4-S*	N-8TA-S *	
		24044 * (78RPM)				S3-3 *	16T-S		

MISCELLANEOUS

ITEM No.	PART NAME	V-M PART No.	NOTES
M2	Switch	12437	Function (Rotary Type)
M3	Motor Ass'y.	21566	Complete (Includes Motor #9134-B)
M4	Switch	21338	Power On-Off (Part of Changer)

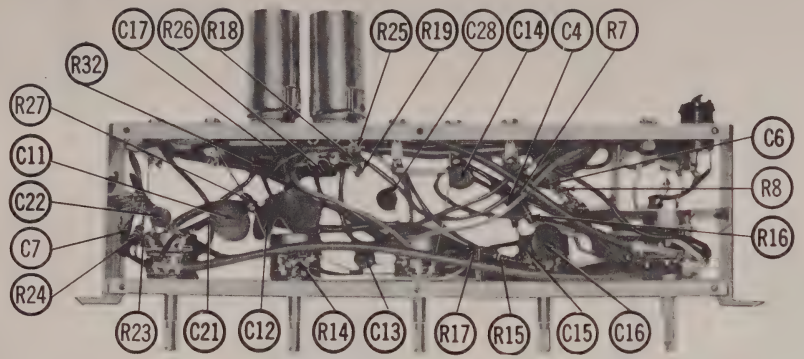
CABINETS & CABINET PARTS

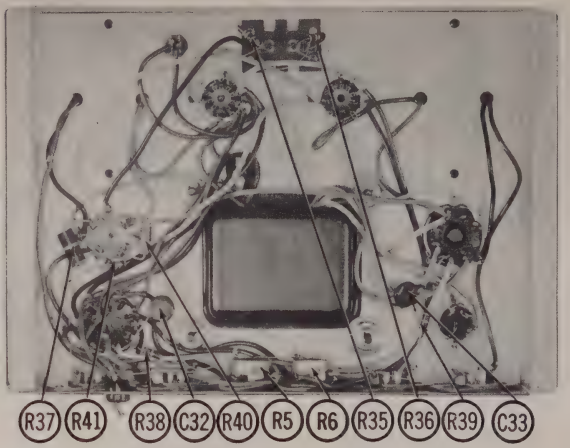
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

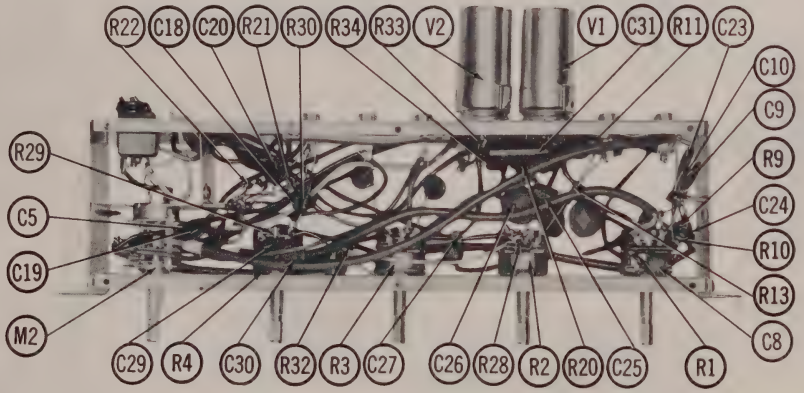
NAME	PART NO.	DESCRIPTION
Knob	23987-A	Loudness, Bass, Treble
Knob	23988-A	Balance
Knob	23986-A	Function, Selector
Cabinet	24149	Model 805 (Complete)
Cabinet	24102	Model 803 (Complete)
Leg	24604-A	Model 803 (Set of 4)

WIRING DATA

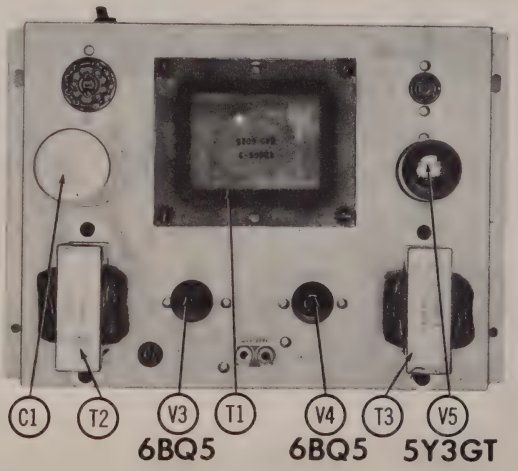
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)







PREAMP CHASSIS

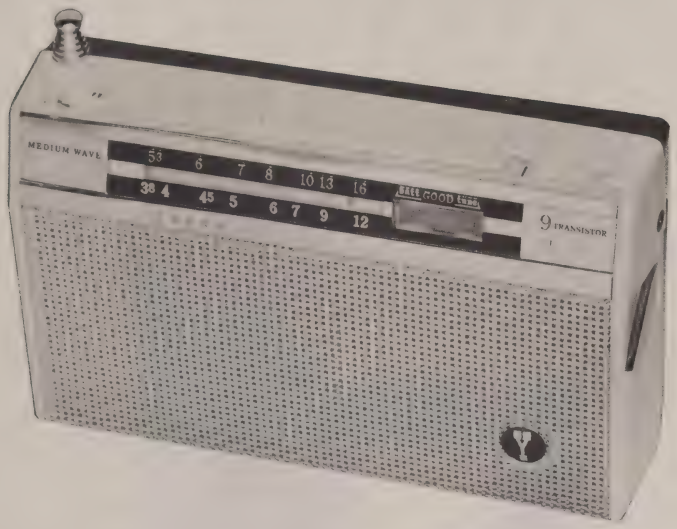


AMP CHASSIS

PHOTOFACT® Folder with CIRCUITRACE®

YASHICA MODEL YT-300

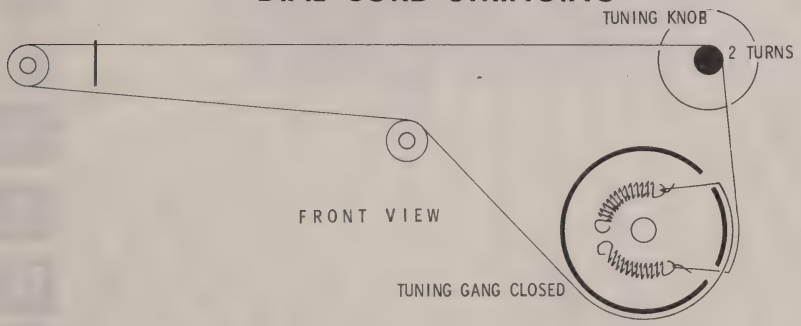
YASHICA MODEL YT-300



YASHICA MODEL YT-300

TRADE NAME	Yashica Model YT-300
IMPORTER	Yashica Inc., 50-17 Queens Blvd., New York, N. Y.
TYPE SET	Battery Operated Transistorized Portable BC-SW Receiver
POWER SUPPLY	6 Volts DC RATING 8MA @ 6 Volts DC (No Signal, Min. Volume) 20MA @ 6 Volts DC (Signal, Normal Volume)
TUNING RANGE—BROADCAST	520 — 1650KC SHORT WAVE 3.8 — 12MC

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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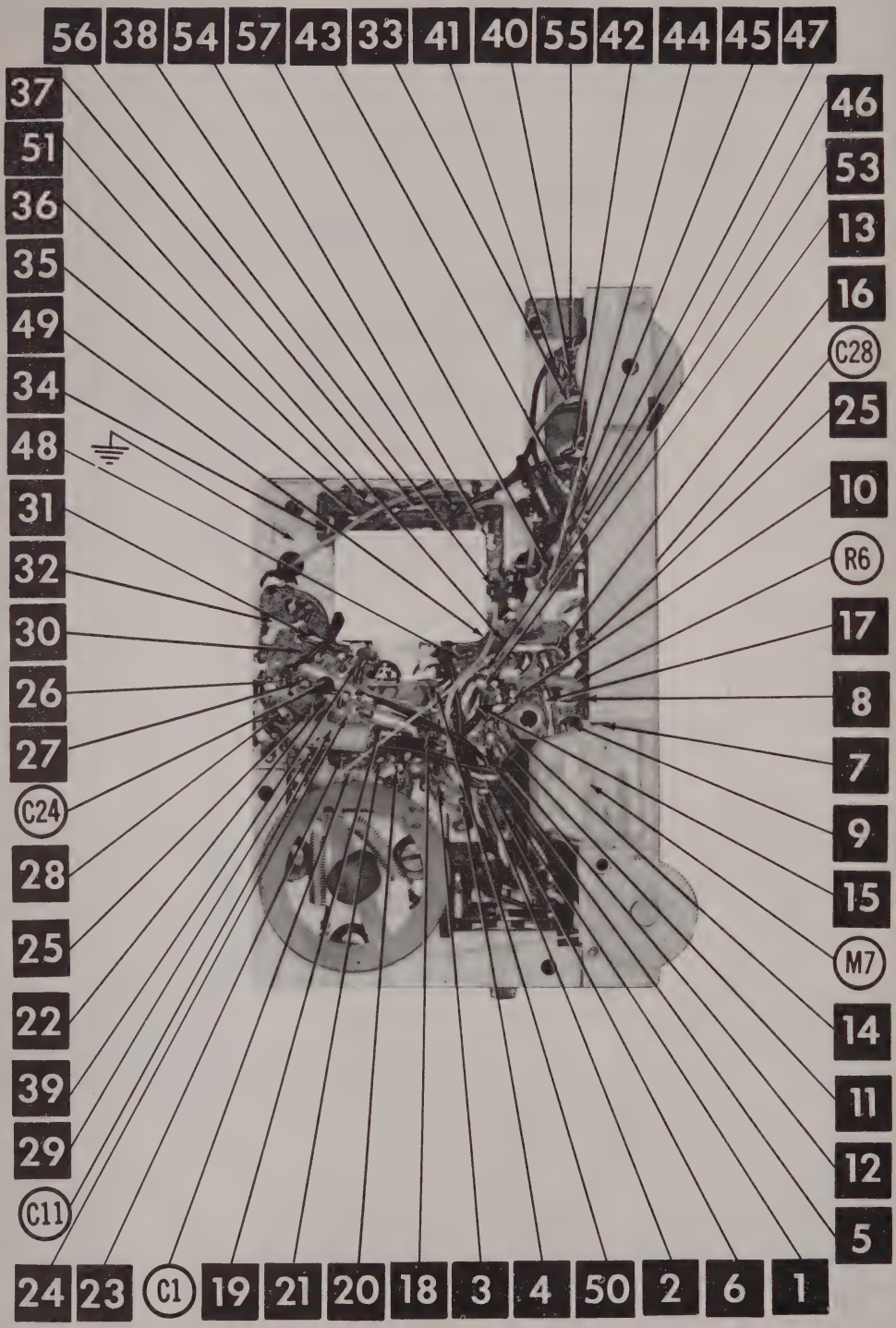
KF626

SET 553 FOLDER 16



A Howard W. Sams CIRCUITRACE® Photo

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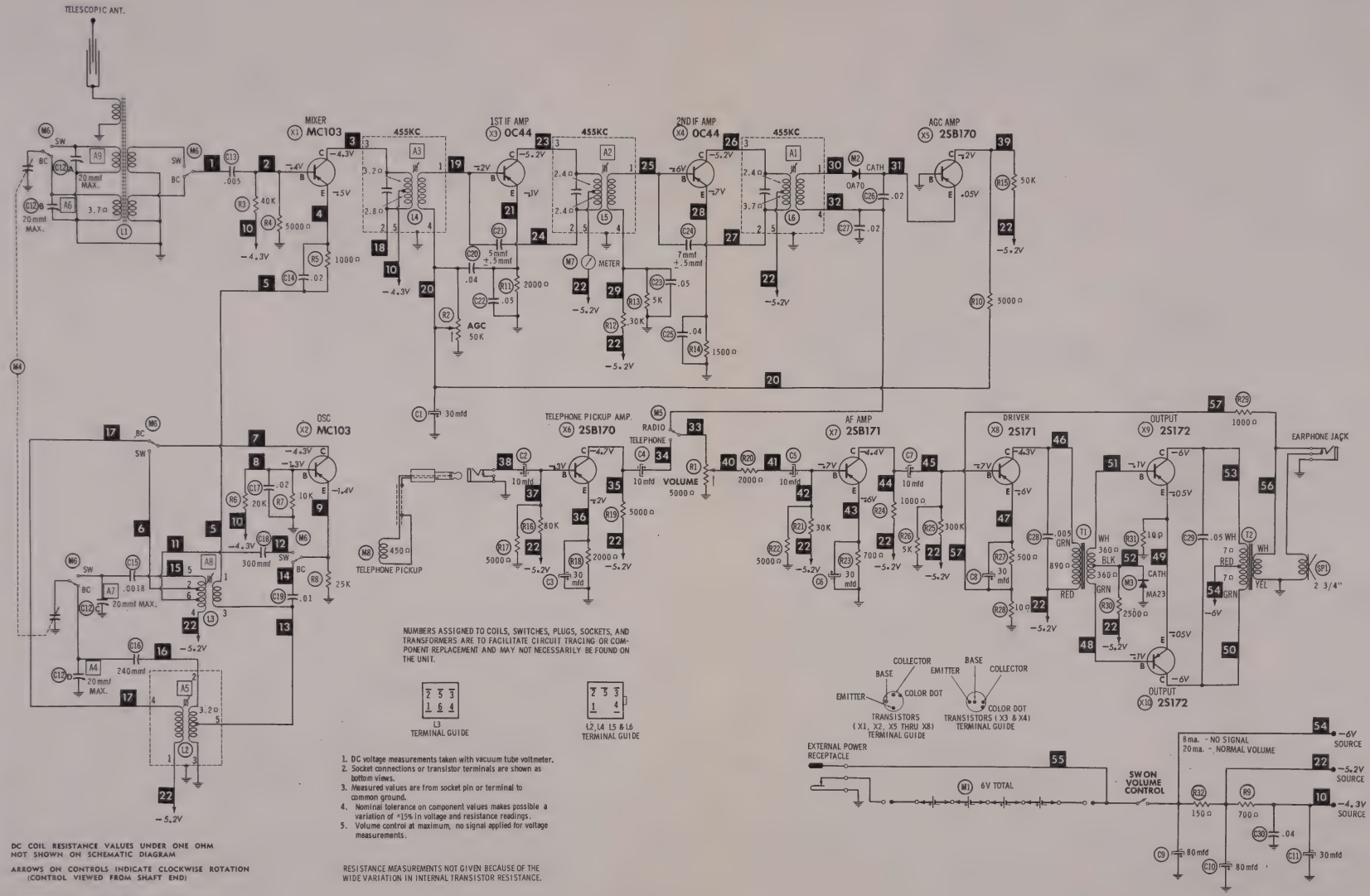

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE

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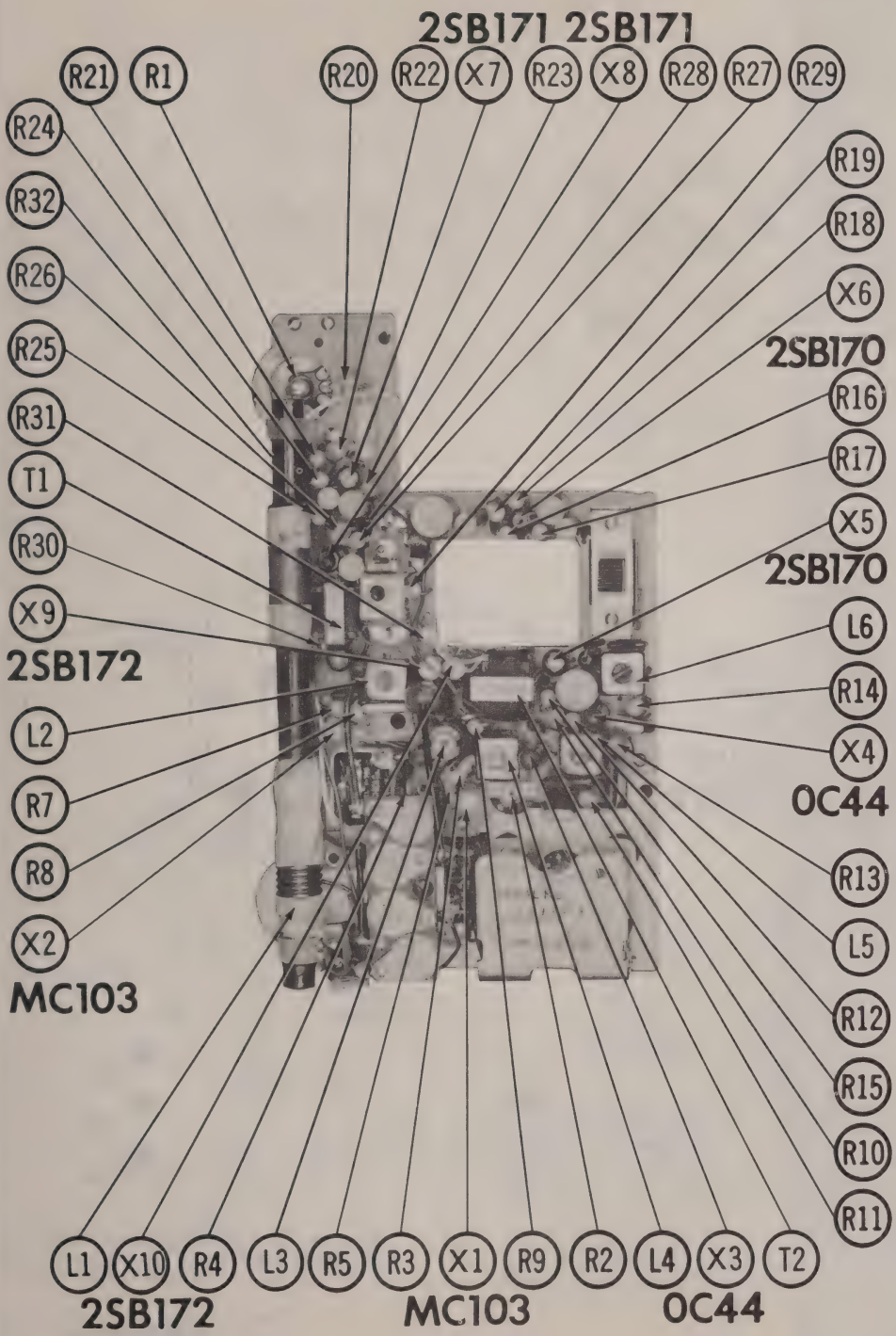
YASHICA MODEL YT-300



CHASSIS TOP VIEW-RESISTOR, INDUCTOR & TRANSISTOR IDENT.

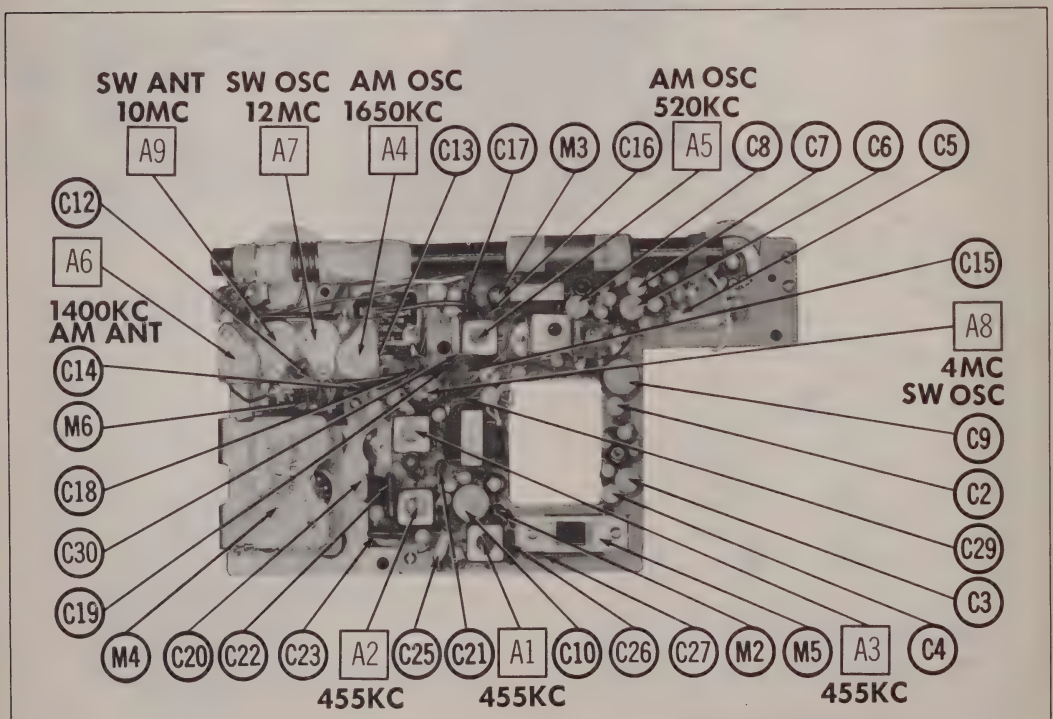
ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5.....GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544
A4, A6, A7, A9.....GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400% Mod.)	(BC) Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	1650KC	"	"	A4	"
3.	"	520KC	Tuning gang fully closed.	"	A5	"
4.	"	1400KC	1400KC Signal	"	A6	"
5.	"	12MC	(SW) 12MC	"	A7	"
6.	"	4MC	4MC	"	A8	"
7.	"	10MC	10MC Signal.	"	A9	Adjust for maximum output. Repeat Steps 2 thru 7.



CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	MC103	Mixer		2N486		PNP
X2	MC103	Oscillator		2N486		PNP
X3	OC44	1st IF Amplifier		2N483	2N412	PNP
X4	OC44	2nd IF Amplifier		2N483	2N412	PNP
X5	2SBI70	AGC Amplifier				PNP
X6	2SBI70	Telephone Pick-up Amp.				PNP
X7	2SBI71	AF Amplifier				PNP
X8	2SBI71	Driver				PNP
X9	2SBI72	Output				PNP
X10	2SBI72	Output				PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	YASHICA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	30	3		PTT10	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092
C2	10	3		PTT6	ECPB408	MT1-5	PET1340	MLV10-3	VL-1038
C3	30	3		PTT10	ECPB412	MT1-13	PET130	MLV30-6	VL-1043
C4	10	3		PTT6	ECPB408	MT1-5	PET1340	MLV10-3	VL-1038
C5	10	3		PTT6	NLW10-6	MT1-5	TT3X10	MLV10-3	TE-1053
C6	30	3		PTT10	ECPB412	MT1-13	PET130	MLV30-6	VL-1043
C7	10	3		PTT6	ECPB408	MT1-5	PET1340	MLV10-3	VL-1038
C8	30	3		PTT10	ECPB412	MT1-13	PET130	MLV30-6	VL-1043
C9	80	6		BCD10080	ECPB117	MT1-18	TT6X80	MLV100-6	VL-1097
C10	80	6		BCD10080	ECPB117	MT1-18	TT6X80	MLV100-6	VL-1097
C11	30	6		PTT27	NLW30-6	MT1-13	TT6X30	MLV30-6	TE-1092

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C12A	20max.							
B	20max.							
C	20max.							
D	20max.							
C13	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C14	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C15	.0018		SI 800	D6-182	L10D18	CCS-182	GP218	10TS-D18
C16	240		SI 240	D6-251	L10T24	CCD-251	GP325	10TS-T24
C17	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C18	300		SI 300	D6-301	L10T3	CCD-301	GP330	10TS-T30
C19	.01		C80V103AM	DM-103	H-05S1		TA-110	TG-S10
C20	.04							
C21	5 ± .5mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C22	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C23	.05		C80V503AM	DA-503	H-05S5		TA-150	TG-S50
C24	7 ± .5mmf		NPO-DI 6.8	DTZ-6R7	C10V7C	CCTO-6R8	CNO-568	10TCC-V68
C25	.04							
C26	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C27	.02		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C28	.005		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C29	.05		C80V502AM	DA-503	H-05S5	CCD-503	TA-150	TG-S50
C30	.04							

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	YASHICA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10						Volume & Switch
R2	50K	1/10						AGC

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R3	40K				R18	2000Ω			
R4	5000Ω				R19	5000Ω			
R5	1000Ω				R20	2000Ω			
R6	20K				R21	30K			
R7	10K				R22	5000Ω			
R8	25K				R23	700Ω			
R9	700Ω				R24	1000Ω			
R10	5000Ω				R25	300K			
R11	2000Ω				R26	5000Ω			
R12	30K				R27	500Ω			
R13	5000Ω				R28	10Ω			
R14	1500Ω				R29	1000Ω			
R15	50K				R30	2500Ω			
R16	80K				R31	10Ω			
R17	5000Ω				R32	150Ω			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		YASHICA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1A	BC Loopstick						
B	SW Loopstick						
L2	BC Osc.						
L3	SW Osc.						
L4	1st IF						
L5	2nd IF						
L6	3rd IF						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	YASHICA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	1	T1P-16A					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	YASHICA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	200Ω CT	6-8Ω	TOP-19A					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	YASHICA PART No.	QUAM PART No.	
SP1	2 3/4"	PM	6-8Ω		27A06Z12	

BATTERIES

ITEM No.	VOLTAGE	YASHICA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1.5V	UM-3		930		1015		M-15R	4 Required

PARTS LIST AND DESCRIPTIONS (Continued)

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		YASHICA PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	OA70			1N60	1N60	Detector (Pigtail)
M3	MA23					Output Bias Regulator

MISCELLANEOUS

ITEM No.	PART NAME	YASHICA PART No.	NOTES
M4	Tuning Cap.		2 Gang
M5	Switch		Radio-Telephone
M6	Switch		Selector (BC-SW)
M7	Meter		
M8	Pick-up Coil		Telephone (450Ω, 165MH)

WIRING DATA

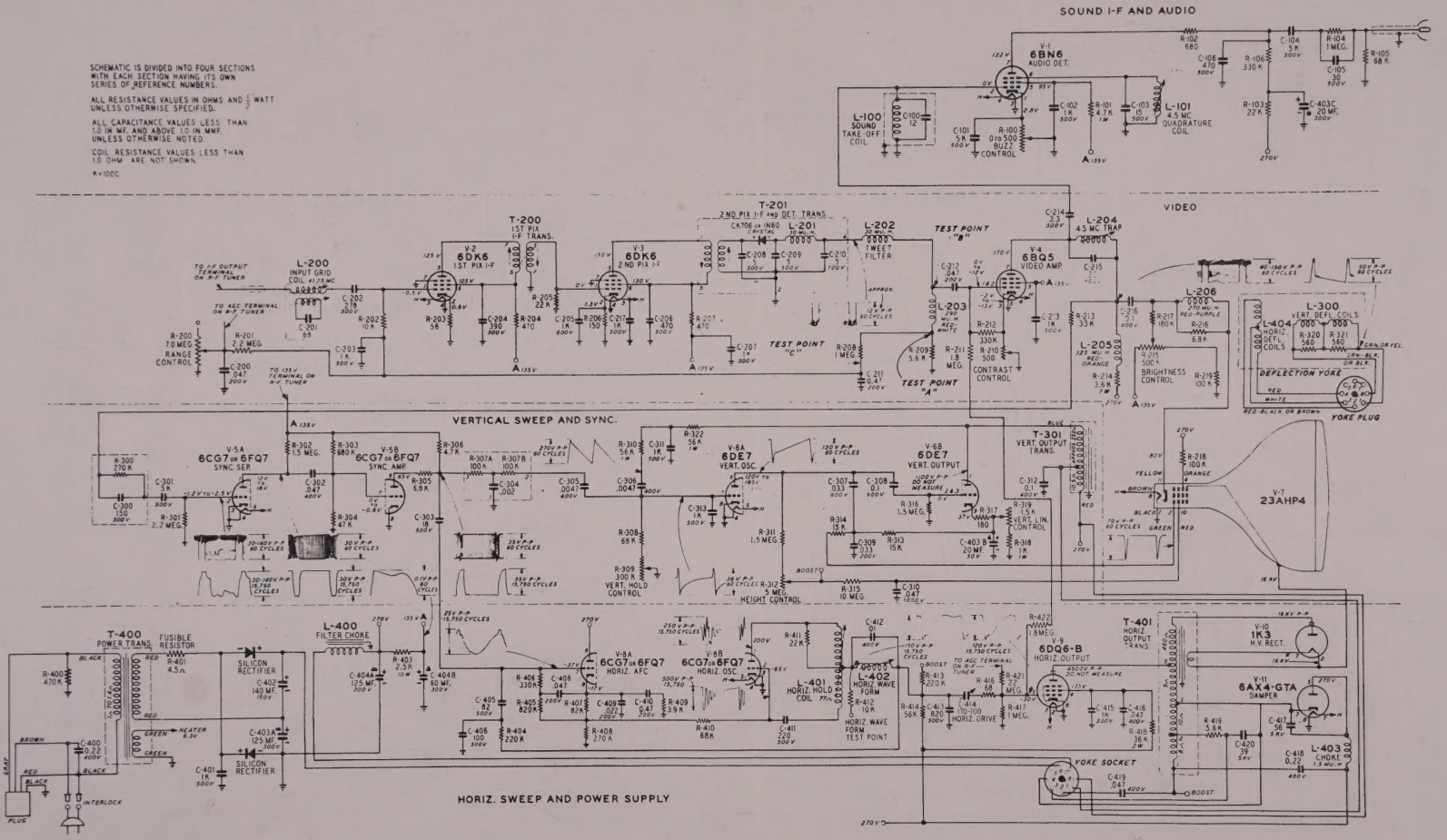
General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

OSCILLOSCOPE WAVEFORM PATTERNS

The waveforms shown on the schematic diagram are as observed on a Tektronix type 524D wide band television oscilloscope with the receiver tuned to a reasonably strong signal and a normal picture. The voltages shown on each waveform are the approximate peak to peak amplitudes. The frequency accompanying each waveform indicates the repetition rate of the waveform not the sweep rate of the oscilloscope. If the waveforms are observed on the oscilloscope with a poor high frequency response, the corners of the pulses will tend to be more rounded than those shown on the schematic diagram and the amplitude of any high frequency pulse will tend to be less.

DC SOCKET VOLTAGES

All DC socket voltages shown on the schematic are measured with a high impedance VTVM and under zero signal conditions.


SOUND I-F AND AUDIO
VIDEO
VERTICAL SWEEP AND SYNC.
HORIZ. SWEEP AND POWER SUPPLY
SCHEMATIC IS DIVIDED INTO FOUR SECTIONS WITH EACH SECTION HAVING ITS OWN SERIES OF REFERENCE NUMBERS.
ALL RESISTANCE VALUES IN OHMS AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.
COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.
R-100C
V-1 6BN6 AUDIO DET.
L-100 SOUND TAKE-OFF COIL
L-101 4.5 MC QUADRATURE COIL
R-100 Ω to 500 BUZZ CONTROL
T-200 1ST PIX I-F TRANS.
T-201 2ND PIX I-F and DET. TRANS.
V-2 6DK6 1ST PIX I-F
V-3 6DK6 2ND PIX I-F
L-200 INPUT GRID COIL
L-201 TWEET FILTER
L-202 TWEET FILTER
L-203 TWEET FILTER
L-204 4.5 MC TRAP
L-205 CONTRAST CONTROL
L-206 BRIGHTNESS CONTROL
V-4 6BQ5 VIDEO AMP.
L-300 VERT. DEFL. COILS
L-404 HORIZ. DEFL. COILS
DEFLECTION YOKE
YOKE PLUG
TEST POINT "A"
TEST POINT "B"
TEST POINT "C"
V-5A 6CG7 or 6FQ7 SYNC. SEP.
V-5B 6CG7 or 6FQ7 SYNC. AMP.
V-6A 6DE7 VERT. OSC.
V-6B 6DE7 VERT. OUTPUT
T-301 VERT. OUTPUT TRANS.
V-7 23AHP4
T-400 POWER TRANS.
L-400 FILTER CHOKE
SILICON RECTIFIER
V-8A 6CG7 or 6FQ7 HORIZ. AFC
V-8B 6CG7 or 6FQ7 HORIZ. OSC.
L-401 HORIZ. HOLD COIL
L-402 HORIZ. WAVE FORM
V-9 6DQ6-B HORIZ. OUTPUT
T-401 HORIZ. OUTPUT TRANS.
V-10 1K3 H.V. RECT.
V-11 6AX4-GTA DAMPER
L-403 CHOKE
YOKE SOCKET

AIRLINE MODELS WG-6050, WG-6051, WG-6052, WG-6150, WG-6151, WG-6152

Schematic Diagram Courtesy of Montgomery Ward & Company

OSCILLOSCOPE WAVEFORM PATTERNS

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DC SOCKET VOLTAGES

All DC socket voltages shown on the schematic are measured with a high impedance VTVM and under zero signal conditions.

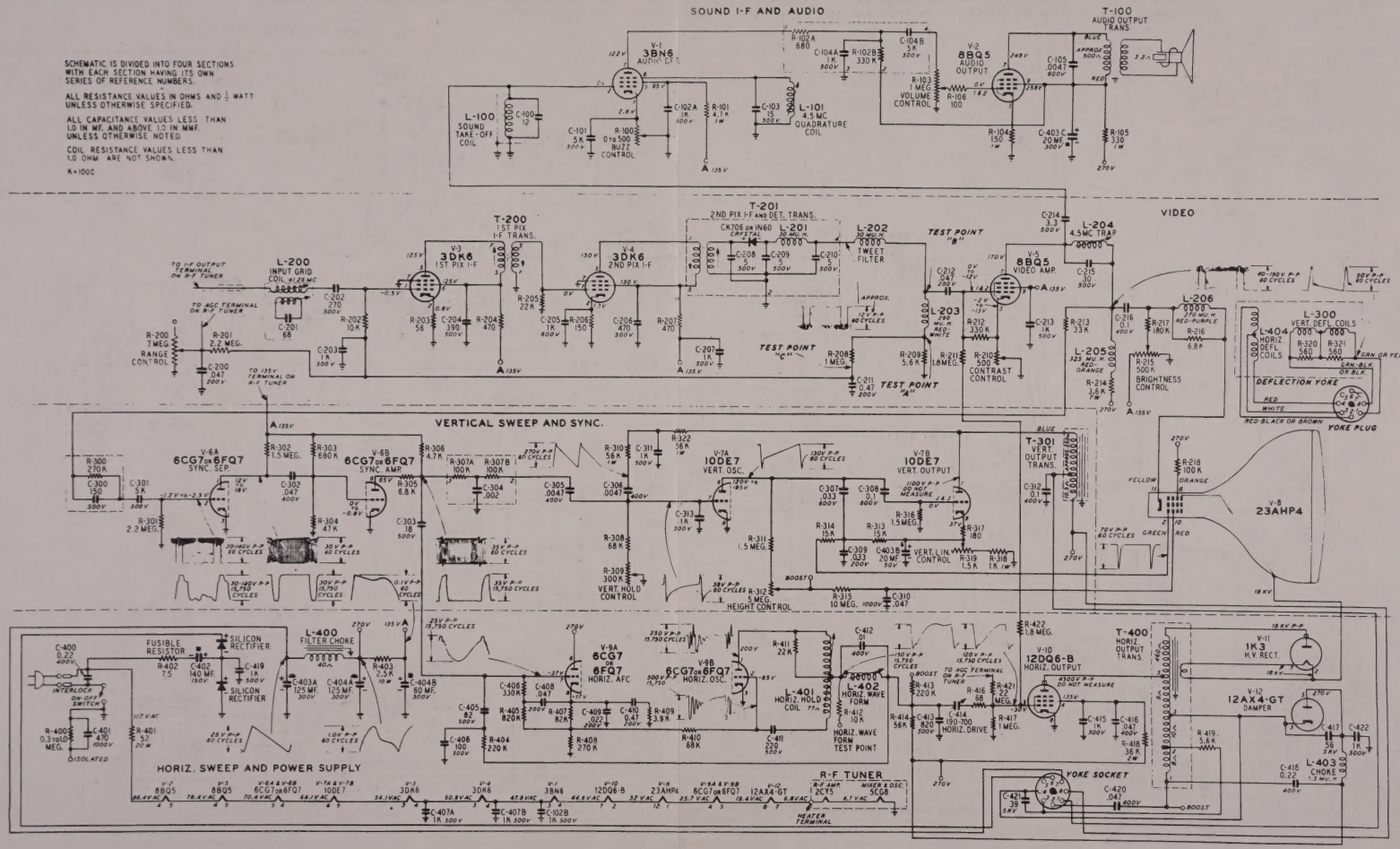
SCHEMATIC IS DIVIDED INTO FOUR SECTIONS WITH EACH SECTION HAVING ITS OWN SERIES OF REFERENCE NUMBERS.

ALL RESISTANCE VALUES IN OHMS AND ½ WATT UNLESS OTHERWISE SPECIFIED.

ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN MMF. UNLESS OTHERWISE NOTED.

COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.

K=1000



TRUETONE MODELS 2DC1270A, 2DC1272A, 2DC1274A

Schematic Diagram Courtesy of Western Auto Supply Company

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forms are observed on the oscilloscope with a poor high frequency response, the corners of the pulses will tend to be more rounded than those shown on the schematic diagram and the amplitude of any high frequency pulse will tend to be less.

DC SOCKET VOLTAGES

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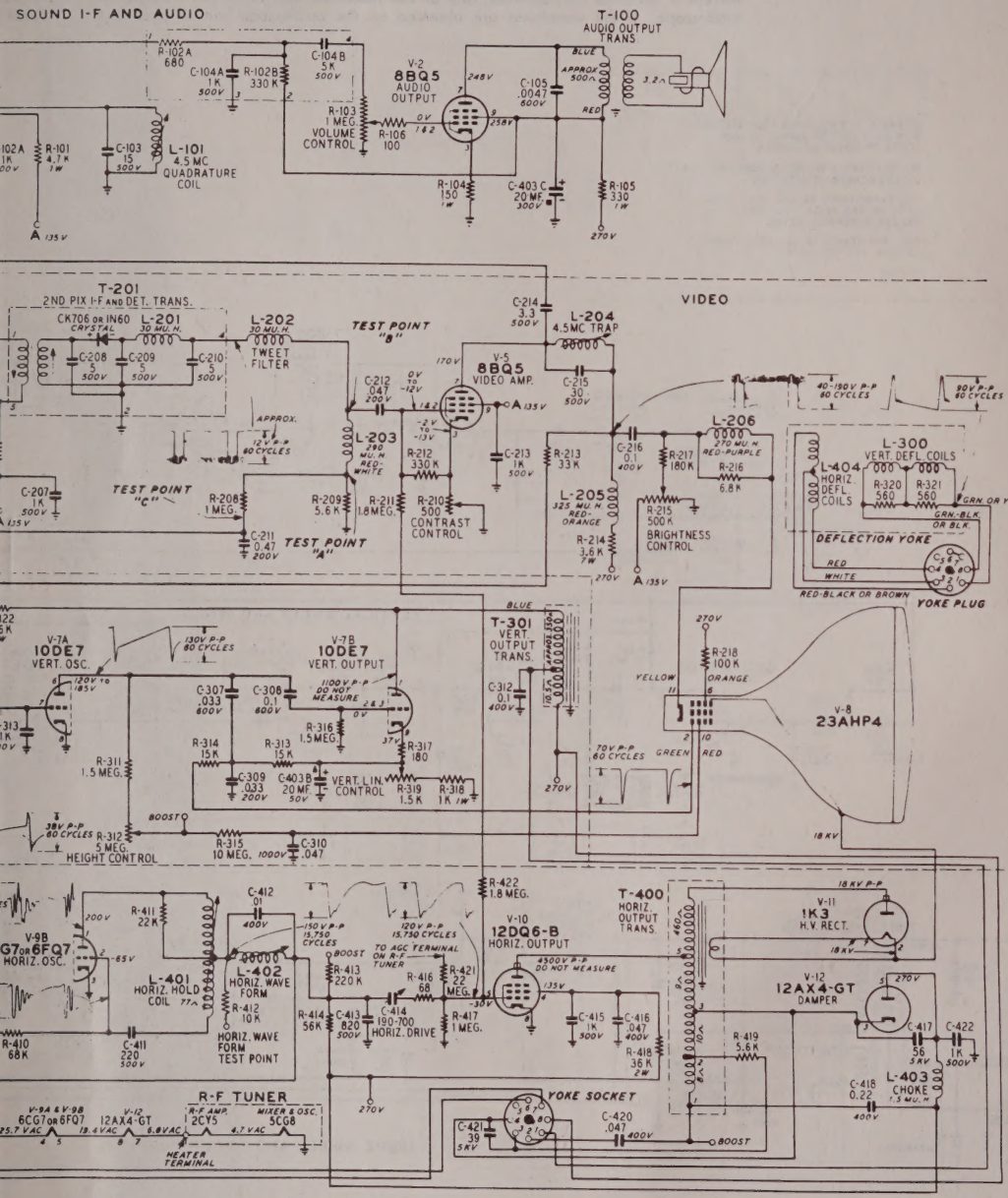

Schematic Diagram Courtesy of Western Auto Supply Company